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ComputerWeekly

Thursday, April 21, 1983

Big German user suspends Fujitsu

by Kevin Cahill

The biggest German user of Fujitsu's machines has been forced to suspend their use until summer. Germany's largest bureau, Datev, despite declaring the Fujitsu OS/IV operating system more reliable than the IBM MVS, will not bring its Fujitsu mainframes back online until June.

According to Datev executives the company encountered problems with data stream control when it introduced the first of the new IBM 3380 discs into its huge installation last September.

Datev is one of the largest independent real time bureaux in the world, running a central mainframe configuration of two IBM 3081K machines and two Fujitsu 380 unprocessors alongside each other.

The Fujitsu machines, which will soon be joined by Europe's first dual processor, Facom 382, are supplied by Siemens and the installation normally runs the Fujitsu machines under OS/IV in parallel with the two IBM machines running MVS.

Sebiger last week declared himself puzzled by IBM's reaction.

The four machines access a data pool of 170 gigabytes which is continuously online and which is based on 48 IBM 3380s as well as 60 Siemens 3550 discs.

Because of the size of the data pool and the need for real time access 24 hours a day by 15,000 of Datev's 25,000 terminals, Datev gradually developed a dual vendor policy which the company felt was essential if it was to be secure from any shortcomings which might develop as a result of relying on one vendor.

The second vendor chosen by Datev's chief executive, Heinz Sebiger, was Fujitsu, in the disguise of Siemens. Sebiger insisted that full dual vendor benefits would only accrue if the second vendor had its own operating system.

In the event Fujitsu was able to show true independence as well as compatibility.



SEBIGER . . . Puzzled by IBM's reaction.

Hitachi three to launch new range

by Kevin Cahill

THREE of the world's largest computer vendors, including two top European companies will shortly introduce Hitachi's new mainframe products to the marketplace.

The machines, announced recently in Tokyo, and intended to complete Hitachi's line-up against IBM's top end machines in the 3081 range, will be launched in Europe by Olivetti shortly, and were included in BASF's line-up at Hanover Fair.

National Advanced Systems, which is US-based and the largest seller of Hitachi systems, will introduce the machines either later this month or early next month according to Bob Howells, NAS European vice-president.

Howells said the only reason for the delay in the NAS introduction was that it did not release systems until it could ship and support them.

IBM's basic offering in the 3081 series is a liquid-cooled diadic (dual) processor called the 3081, with letters K, D and G and a mips rating of 4 to 6.

The Hitachi M280 range now offers an improved 280H to compete directly with the 3081K. The M280H has an expanded buffer

memory to 256K, compared with the conventional 64K buffer and an arithmetic operation which is rated at 1.3 times the 280D (about 7 to 7 mips).

The M280D is a completely revamped machine, although pitched against the slower IBM 3081K and with a maximum main memory of 64 Mbytes.

The IBM uniprocessor version of the 3081, designated the 3083J, introduced to plug a gap through which customers might want to do competitive swap-outs, is matched by Hitachi with a completely revamped M260K which has maximum main memory of 32 Mbytes and a speed of around 2 mips.

To compete with the slower 3083 B and E processors, Hitachi has introduced an improved 260H and developed a new version of the series called the 260D.

The main features of the new additions are that all are field upgradable, which means in practice that it takes an engineer just a few hours to swap boards in the processor.

All the new machines use 550 gate logic arrays and incorporate memory chips of 64K capacity with delay times of .45 nanoseconds.

Hitachi has not bothered to offer



Work starts on cabling standards

by John Kavanagh

THE government has started work on communications standards for the proposed cabling of the UK — months before Home Secretary William Whitelaw is due to present the White Paper to the Commons.

The Department of Industry has

contracted the UK communications firm Network Technology to lead a study on the standards needed to link cable television services, local area networks and public data networks. British Telecom, ICL and Thorn EMI are also involved.

This group will look at the possibility of linking cable television networks run by Thorn EMI in Swindon and British Telecom in Milton Keynes. British Telecom's X25 packet switching network and high-speed Megastream and Kilostream digital services will be considered for this link.

But the study is also going much further. The group will look at standards needed to upgrade the cable television networks to include data communications, using the broadband local area network which Network Technology sells in the UK for the US manufacturer Sytek. And it will study standards involved in linking ICL broadband local area networks into the cable system.

The result of this latest industry study could be a pilot project linking domestic and business users in Swindon and Milton Keynes.

"The pilot project could become a testing ground for things which are only on paper at present," said Dick Wilson, who is leading the project from Network Technology.

Wilson added that the local area network market had moved beyond last year's arguments over whether broadband or baseband systems were better. "We're to

longer argue over what a local area network is but talking about real applications," he said.

"We sold 12 systems last year. What was significant was the fact that they all went to end users rather than research laboratories, so they'll evolve to live systems."

LEX Service, the exclusive UK dealer for Volvo cars, has bought Jermyn Holdings, an electronic components distributor, for £15.3 million. Jermyn is in the top five UK distributors with a profit of £1.17 million in 1982. It is the sixth largest company in the field in West Germany and operates in France. Lex already owns Schwebel Electronics, a leading US group, and Hawke, a small UK distributor. It is intended that electronics distribution should account for 26% of Lex's turnover of £700 million this year.

The second recommendation is that the Alvey funded projects, which will be targeted on Software Engineering, VLSI, Knowledge Based Engineering, and the man machine interface, should be controlled by a large directorate. Again, this is contrary to Mrs Thatcher's avowed policy of reducing, and not increasing, the number of civil servants.

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Europe ready to unveil IT policy

by John Riley

EUROPE'S attempt to outthink the Japanese and American fifth generation research programmes is likely to be adopted as official policy by the European Commission next week.

But Euro MPs do not want the programme to suffer the long delays that have plagued the existing European data processing programmes.

Prominent among critics of the existing data processing policy is Belgian Euro MP Fernand Herremans, who said this week: "It has taken many years to achieve very little at great cost. I mainly blame the Council of Ministers for the delays and changes to the programmes so far, and I have drawn attention to the situation in the European Parliament, in the hope that the Esprit project will be run more efficiently."

Some 16 pilot projects, in advance of the main Esprit programme have already been approved and tendered for, and the contracts are shortly to be announced.

As if to underline Hermann's point, the first contract as part of

the European Microelectronics Programme, which has been held up for a year, was announced this week. The Science and Engineering Research Council, in collaboration with General Electric, Philips, University College Swansea and Trinity College Dublin, has won a £2 million contract to develop methods of simulating and testing the behaviour of semiconductors.

Other contract announcements are expected imminently.

The European Parliament recently boosted the four-year European data processing budget from £8.4 million to £30.75 million. Of the £24.6 million increase, some £17.89 million will go towards study relating to information technology, microcomputers, terminals and intelligent devices, and £6.71 million for developments in electronic components.

The cash will be formally approved this December.



by our Parliamentary Correspondent

THE Lords last week gave a second reading to the Telecommunications Bill knowing that their effort would be wasted if Margaret Thatcher goes for a June election.

It is unlikely that either the Telecommunications Bill or the Data Protection Bill could be passed in time for a June election, since that would require the co-operation of the Labour opposition. Neither Bill is likely to be granted a speedy passage by Labour.

So if Thatcher does go for June, both Bills will fall and have to be reintroduced in the new Parliament if the Tories win. Labour has pledged to scrap the Bills.

Meanwhile in the Commons, Enoch Powell drew the attention of Trade Minister Peter Rees to an anomaly which allows fully or partly assembled microcomputers to be imported at only six per cent duty, while the individual components are subject to 17% import duty.

Rees replied that the government was actively considering an amendment to the various industrial interests concerned how best to proceed.

Oki gets back to mainframes

by Kevin Cahill

JAPAN has now added a fifth mainframe manufacturer to its armoury of computer companies preparing for the sales war of the information technology age.

Oki Data, Japan's fifth largest electronics company, has announced that it will shortly commence building Sperry Univac mainframes in Japan.

A little over three years ago, Oki - which is a significant telecommunications and microcomputer supplier in Japan - announced an ambitious plan to carry out a series of leapfrogging operations in

given Oki the position it has been seeking, it is not clear why a Japanese manufacturer should be going into non-compatible machine production when the remainder of the Japanese computer industry (with the exception of NEC) have either gone compatible in the manner of Hitachi and Fujitsu, or have gone part compatible like Mitsubishi.

That plan, which also had as its centrepiece a move back into mainframe production, which Oki abandoned early in the Sixties, was severely disrupted when a fire in the company's Koyosu chip plant set semiconductor production back by a year.

The factory is now back in production and Oki has won its battle to take on marketing and production of the Sperry mainframes.

While these two events have

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The systems can also function as autonomous minicomputer networks or as part of a large-scale integrated network.

Mike Bateson, Ericsson's UK marketing director said: "Series 2000 puts Ericsson well ahead of its competitors, and we are going out aggressively to corner the UK market."

Ericsson has adopted a deliberate strategy to get into the market for information systems over the past three years. To this end it took over the data processing company Datastar and the office automation company Facit.

The Series 2000 features two lines of systems, System 2100 for banking automation, and System 2500 for distributed data processing in business applications. The business packages have been updated from the series 16 and office software such as electronic mail, information retrieval and text processing have been added. Ericsson has already received six orders for the Series 2000.

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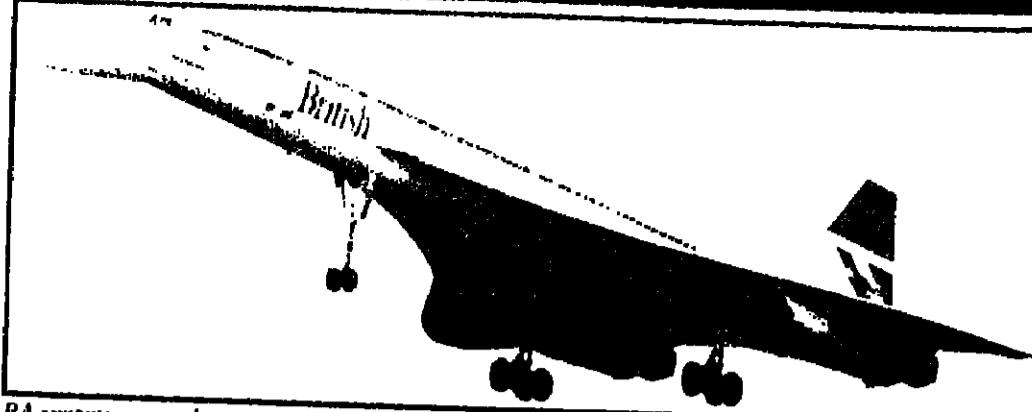
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BA computer systems have scored to an export award... but BIS just missed out.

BA exports please the Queen

by Philip Hunter

BIS Software almost doubled export sales of its banking systems to £7.6 million last year, but still failed to pick up a Queen's Award for Export Achievement. The company has taken the award for the last two years, and in 1982 it also won the Institute of Marketing's Annual Award.

"I guess it's disappointing we didn't win a third Queen's Award with exports up 81%," admits disappointed marketing manager Stan Smith.

HIS figures were as good as some of the companies that did win awards, Smith claims. But un-

like the others, the improvement was not dramatic.

Overall sales of BIS Software were up 68% for the year ending 1982, and orders expected to be fulfilled this year top £10 million, £2 million of which were taken in February alone. Profits will not be announced until results of the whole group come out in June.

BIS Software's main product is a suite of banking programs called Midas, which run on IBM's System 34 and System 38. These dominate the international banking systems market.

The key to export success of Midas is the ability of the package to be adapted for local requirements and to cope with particular idiosyncrasies of particular foreign banks.

The company was nearly caught out when adapting the package for the Japanese, since bank interest there is added on both the first and last days of the month, rather than just one or the other as in most Western countries.

BIS has just announced a new module for Australia to deal with pledged securities which banks use to avoid paying too much tax. The company is also developing programs to handle the financial futures market in London.

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BIS banking exports take off

by Howard Karten and Robert Parry

APPLE Computer recently notified its US dealers that from June 1 those who wish to remain Apple dealers will be required to submit detailed information to Apple regarding their sales strategies, advertising efforts, and other facets of their operations.

The information Apple requires includes the retailers' sales strategies for each Apple product family, physical description of each retail sales outlet, personnel descriptions including organization charts, compensation plan and performance review plans, and advertising and promotion budgets.

Meanwhile in the UK, Apple has been going through its dealer list and putting things on a more formal basis.

"We spent some time learning from our colleagues in Europe and the US," says UK managing director Peter Cobb, "then invited a very large percentage of our existing dealers to sign new contracts." Around a tenth elected not to sign, he adds.

"We have always taken the position that selling microcomputer needs professionalism," Cobb says. "It's not just selling pounds of cheese - you need good initial advice as well as continuing after sales support."

Observers in the US cite several reasons for Apple's move. First, in recent months Apple has taken several steps to tighten up or eliminate the so-called grey market, that is Apple products bought in large quantities (and therefore at significant discounts) and then resold to mail-order houses, who

then sell at prices below those of full-service Apple dealers.

In addition, Apple is believed to be trying to protect itself from dealers who are currently on shaky ground. One such dealer recently entered bankruptcy, owing Apple about \$1.6 million.

Several Apple dealers contacted had not yet received their notification from Apple. One large Boston-area dealer, Sherman Howe, when informed of the provisions in the letter, applauded.

"I work very closely with Apple," said Howe, whose company last year did around \$6 million in business with Apple, mostly selling to corporations.

"We provide a lot of this information to them as a matter of course. I see nothing wrong with Apple's move because it seems to make a lot of sense," he said.

Plexus says no to \$1 million

by Andrew Thomas

CALIFORNIA-based supermicro maker Plexus has secured a further \$6 million of venture capital, bringing its total in three years to \$12 million.

And, according to company president Bill Jobe, the offer of an additional \$1 million was rejected because Plexus doesn't need the cash.

"We'd rather keep the number of shares down," says Jobe, "so we can meet our target of \$1 a share. All we would have done with the money was to put it somewhere we would have got interest on it."

Each of the company's seven investors in the two previous cash injections increased their investment in Plexus, including London-based financier Abingworth.

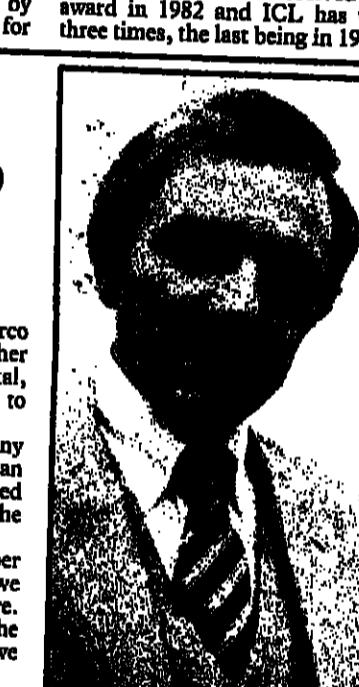
Five other US concerns contributed to the \$30 million. The extra million was offered by a second consortium wanting to take a stake in Plexus.

One area in which Jobe sees the money being used is that of business graphics.

"Colour business graphics is the big hit in our line. It's going to be next year's big thing," he says.

Plexus' new products for this year were announced last week; a Unix-based network operating system, NOS, and a link between Plexus 16 and 32-bit supermicros and IBM mainframes.

NOS is an Ethernet system which Plexus claims allows the for-



JOBE... Turned down million.

mation of a network of individual systems that can out-perform minicomputer installations.

"NOS turns our systems into supermicro building blocks," says Jobe, "giving a flexibility that minicomputers and superminis can't provide."

The supermicro-mainframe link is claimed to be the first Virtual Protocol Machine implementation under Unix III, and also supports RJE under the HASP multilevel working protocol.

VPM is automatically included in the Plexus implementation of Unix III, and the RJE option costs an additional \$865. NOS will cost \$1,725 per system when it becomes available in July.

Leasco database

DATA General has made one of the first UK sales of its MV10000 computer office with £200,000 worth of computer equipment to help track Europe's thunderstorms. The scientific group of the company will build a real time system round a Perkin-Elmer minicomputer to analyse data received from unmanned stations that detect the flashes of lightning.

Process control

PRESTCOLD, one of the Suter group, has invested £220,000 in a manufacturing control system designed by UK control software specialist Comserv. The control system will be used to help make compressors and condensing units for refrigerators.

\$20m contract

US MAKER of small business systems ABS has beaten Wang and Four Phase to a \$20 million contract to kit out US lawyers with word and information processing equipment. Attorneys offices across the US will be given a total of 123 ABS Multisys systems for applications including scheduling of court cases.

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BA exports please the Queen

SALES BRIEF

Imperial is first to get big Cyber

THE first UK order for Control Data's Cyber 170/855 big mainframe has come from London University's Imperial College. The 170/855 was launched a year ago as a direct rival to IBM's 3081.

Imperial College is a long-standing Control Data user. The 170/855, valued at £1.5 million, will replace a 170/720 and run alongside a Cyber 174.

BIS systems include MAXIPARS reservations package, fares systems, and a departure control package which is now used by 22 of the world's airlines. In addition to systems sold for use on customers' own computers, the airline sells space on its BABS network to 21 other airlines.

The largest single software order won by BA came last November, when a £1.5 million contract was signed for the provision of computer systems for the Egyptian national airline, Egyptair.

Other airlines using BA systems include United, Qantas, Saudi, Varig, and Pan American. No computer manufacturers were recognised in the 200 awards presented last Thursday. CAD firm Racal Redac received an award in 1982 and ICL has won three times, the last being in 1976.

Two other programmes. The Education Allowance Programme gives a 40% discount on most Prime hardware and an 80% discount on software for institutions using the equipment for degree courses. The Education Discount Programme allows a 20% hardware and a 50% software discount for all educational establishments with no restriction on use.

There are three separate programmes. The first, the Educational Support Programme, is to allocate £2 million to give small educational institutions, including schools, a 50% reduction on complete systems based around a Prime 2250 minicomputer. The Education Discount Programme allows a 20% hardware and a 50% software discount for all educational establishments with no restriction on use.

Neil McMullan, managing director of Prime (UK), said: "Both education and Prime stand to benefit. We are offering the sort of equipment for IT training, and are reaffirming our commitment to the educational market place.

"More people will be educated on Prime systems, and educational institutions, which are high visibility areas, are prolific producers of software, which we are keen to encourage."

Gale Aguilar, Prime's vice-president, systems marketing, commented: "We are now 10 years old, and have just entered the Fortune 500 top US companies. We are now in a position to make more long range investment.

Prime has four distinct targets, affirmed McMullan. "These are information technology and office automation; distributed data processing and information management; CAD/CAM; and education and research," he said.

CP/M is now tuned in to C

by George Black
DIGITAL Research is to start delivering C-language versions of its popular CP/M operating systems this week.

Author of the C-compiler, Michael Lehman, assured a software vendor's forum in London that C would get the "utmost care" in secondary schools.

The two machines will share disc files and peripherals and will serve about 600 terminals and microcomputers around the college, in other universities and in secondary schools.

They will also link into a London University network, communicate directly with processors at the main university computing centre and at the Science and Engineering Research Council's Rutherford Laboratory and hook into the national university network, which is based on the X25 packet switching protocols.

The first C-based version, which is claimed to have the advantage of greater portability and compactness over its Assembler forerunner, is designed for the Intel 8086 chip machines.

CP/M-68K - the version designed for the Motorola 68000 chip machines - is bundled with the 8086 version, but Digital says this is not a full implementation. Lehman's complete 68000 implementation may be available by August.

He told the conference: "C is a sporty language. It is not something you would give your grandmother to drive on a Sunday afternoon."

Lehman said he saw the industry moving in the direction of "mainframe languages", such as Logo.

They would be getting a lot of attention.

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French take personal approach to end users

by Jack Gee
CAP GEMINI SOGETI, the French software service company, has launched a European programme to train sales staff to negotiate with end users in companies which are installing big batches of personal computers.

Chris Ugander, president of its Europe group, said in Paris: "It is still too early to say how microcomputers will affect our business. But the purchase by individual firms of hundreds or even thousands of personal computers tied in to local networks could have a big impact."

The GCS European chief added: "Personal computers will speed up the process of putting computers into the hands of end users. Data processing managers will lose much of their power."

Explaining why his company is retraining sales personnel for this new situation Ugander said: "We can no longer talk to our own DP managers because 55% of our sales managers report that end users are the key people who take the decisions nowadays. We want to make sure our sales staff change their approach and grab the new opportunities."

CAP Gemini Sogeti, which has subsidiaries in nine European countries, is now looking for



DREYFUS... "We will probably try to acquire a medium-size company."

Dec means business with Vax

by Philip Hunter

THERE are now more commercial than scientific users for Digital Equipment's powerful Vax minicomputer family. And Decus, the DEC user group, has at last recognised the commercial side of the Vax by forming a Vax commercial users' group, which will meet for the first time in May.

DEC has just announced

powerful terminal database system for the Vax, and is developing a relational database. But Steve Riley, of Decus, says the significant

moves were the implementation last year of the Codasyl database system and also of the international standard version of Cobol, the world's leading commercial systems language.

Meanwhile third party software

houses have muscled in on the Vax

with software for order processing,

invoicing and payroll. Software

Sciences, part of the Thorn EMI

group, has transported its Ora

order processing and stock control

system from DEC's PDP-11 minis

on to the Vax. A package system

for the PDP-11, which has

only 64K central memory, had

to be carefully written to save

space.

To convert programs written in

Cobol for the PDP-11 to the

Vax, it is necessary only to recom-

pile the individual code segments,

and then remove the complex

linkages needed to make the pack-

age run on the PDP-11.

by John Riley
MORE accidents will occur with the proliferation of increasingly complex chip-controlled industrial processes unless a code of safety practice is agreed, says a report published last week.

It points out that although microprocessor-controlled systems, for example in robotics, offer considerable benefits in terms of productivity and quality, there are inherent safety problems. Unconventional precautions have to be taken as electronic failure modes are complex and not always predictable, the devices are susceptible to electrical interference, and latent software errors may cause dangerous situations.

Decus member Arrick Wilkin-

son says that it should not nor-

mally be difficult for software

houses to convert software written

for the PDP-11 for the Vax.

Programs for the PDP-11, which

has only 64K central memory, had

to be carefully written to save

space.

These problems are being ex-

amined by the Health and Safety

Executive. It is drawing up a code

of practice which will provide ad-

vice on safety, environmental and

operating considerations. The

safety aspect will emphasise pro-

gramming considerations, back-up

systems and emergency shutdown

systems, and reliable software.

The environmental considerations

will deal with problems caused by

electrical interference and fire pro-

tection, and guidelines will be laid

for operating and maintenance.

Manufacturing and Service Industries

Health and Safety 1981. Her Majesty's

Stationery Office, 1983. £6.50.

Home shopping and banking may be worth \$30bn by 1995

by Nuala Moran

THE provision of computerised services such as shopping and banking from the home will become a \$30 billion business in the US by 1995. This is the conclusion of a two-year study of the consumer attitudes of 700 families conducted by Booz Allen and Hamilton, an international management and technology consulting company.

Of those surveyed 60% say they would buy basic services for \$15 a month, 75% said they would use home banking and bill-paying services, 70% said they would use

home security services and 50%

said they would use video games.

Hans Schwirman, a vice-president of Booz Allen, says the market for these services will grow rapidly from 1986 onwards, much sooner than industry experts have predicted.

"With the timetable for introducing such systems to the market so close at hand, the stakes for a variety of industry participants are huge," Schwirman adds. Opportunities will exist for European manufacturers of consumer electronics to have a share in a £10 billion market, he says.

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British Rail Board
VAG UK
British Shoe Corporation

GROUP 3
BL Systems B
Probe Data Systems

Kalamazoo C
Scottish Widows (Jockstraps)
Computer Systems & Products

GROUP 4
Grand Metropolitan 3
British Shoe Corporation
Fletchers Computer Services
Horizon 2
Bristol & West Building Society
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BBC presenter slams the micro

by Kevin Cahill

THE BBC's prophet of a rosy future with microcomputers, Ian McNaught-Davis, has let slip that "the whole thing is a disaster".

McNaught-Davis, managing director of Computer and presenter of the BBC microcomputer programme, told the London branch of the British Computer Society last week that "everything went wrong every time."

Most of the programme makers were there from morning to night trying to get the micros to perform the most elementary tasks, he said, with "the only micro that worked the one you saw".

McNaught-Davis said that we'd all been hyped into believing that the micro would solve every business problem.

"They don't walk into a car

showroom, select a car and then expect driving lessons to be thrown in free."

Moving from the hardware and software end of the micro industry directly, McNaught-Davis described most micro manuals as "creations akin to the Bible".

"If you started at Genesis and read to the end it's bloody hard to work out the code unless someone explains it to you."

And if the manuals are not as thick as the Bible, they tend to be useless, he noted. By way of putting a very small candle in the very dark tunnel he had created, McNaught-Davis said that he had never seen so much money being spent: "Literally hundreds of millions of dollars in the US, to solve the problem. It will get cracked," he concluded, "within five years."

"There are a lot of very clever people around in the industry and they don't come free," he said.

"Imagine," McNaught-Davis continued, "people come into me and buy a £50 piece of software and ask for the training to be thrown in free."

"They don't walk into a car



MCNAUGHT-DAVIS... "Everything went wrong, every time."

Ex-Plessey men sell Plessey peripherals

by Nuala Moran

THREE Plessey managers have split away from the firm to set up a UK distributor for Plessey Peripherals Systems (PPS).

Mike Brisland, ex-managing director of PPS, and sales managers Duncan Hilton and James Addison formed Centrose to sell the BBC-compatible kit after failing to find a suitable distributor while they were working for Plessey.

"There is nothing sinister about the setting up of a separate company," said Brisland. "This is a very competitive market where generally prices are falling and PPS needed to find a new means of supporting sales."

"Sensible sales personnel are difficult to find and command high salaries. It therefore became logical for PPS to have a distributor base".

As there was no suitable distributor, Brisland's ambition to set up on his own led to the formation of Centrose.

Initially, Centrose will only sell PPS products. It will then move on

to sell other companies' products which do not compete in the same sector of the market.

"This is an area where between us we have 40 years' experience and we are confident that we can do justice to Plessey's products," said Brisland.

And Gerard Mottier, vice-president international sales of PPS, said: "Plessey jumped at the opportunity of getting people who are familiar with the market and who know the products to sell for us."

Plessey's sales people will now concentrate on the OEM market. The Centrose distributorship will be exclusive and PPS will continue to provide technical and software support in the field on its products.

Centrose will take over PPS's existing end user customer base and is setting up a computerised database linking the customers to their interests. There are three offices in Northampton, Manchester and Ascot and Centrose intends to open three more in Bristol, the North East and Scotland.

"We will be purely directed to wards business men," he said, "Talking to them in non-geographical terms. We have identified a gap in the market for hardware and software and backup supplied together. We provide a free problem solving service over the telephone, because many problems are just operator problems - someone pressing the wrong key at the wrong time.

"And we can provide detailed and sophisticated backup by applying

Image standards proposed

by Donald Kennett

STANDARDS have been proposed for handling photographic and geometric images on videotex (viewdata) systems and terminals. They have been developed by working groups in CECIT, the Conference of European Postal and Telecommunications Administrations, which publishes standards for Europe.

Preliminary drafts were presented earlier this month at a seminar in London held by British Telecom Research Laboratories consultancy staff. BT staff also described work in various European countries on links between national videotex services - directly, in favour of using emerging international standards for digital colour television based on controlling chrominance and luminance.

Documentation of the proposals is being prepared for inclusion in a revision of the 1981 European standard for alphanumeric (text and simple block graphics) videotex

systems which is to be presented to CECIT (the International Telegraph and Telephone Consultative Committee - which sets worldwide standards for telecommunications) in September.

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the CEPT working groups are keeping in touch with as much other standards work as possible.

Graham Hudson, the UK delegate to two of the groups, said that for the addition of photographic images to videotex services, the relevant working group had rejected North American ideas of addressing the red, green and blue electron guns of the television set directly, in favour of using emerging international standards for digital colour television based on controlling chrominance and luminance.

This compares favourably with the cost of computer-controlled microfiche at about \$20,000, or CRT graphics at about \$15,000, said Hudson.

But to get that workstation cost of \$3,000 you have to buy about 300 workstations and, according to Longcroft, change your whole system of working.

At the core of an in-house Memos system is the studio which creates the discs, and that alone will cost £1 million.

The offer documents accompanying the Memos launch warn that there are high risks attendant on the venture, and break-even is not predicted before 1986.

Longcroft agreed that the com-

pany has not got its marketing right so far but said just one sale would be worth up to \$70 million.

The Memos 6000 system is based on images back-projected off the disc onto a screen in the workstation. The images are then read by a charge coupled device and fed into the workstation's circuit boards.

The unit, with 256K RAM, twin 5 1/4" floppy drives, MS-DOS operating system, Multiple spreadsheets and In-Scribe word processing package, costs £3,600 from Anderson Jacobson or Gulfstream.

Memos is a spin-off from Combined Technologies Corporation, itself a spin-off from the oil company Tricentrol.

According to Memos marketing director Chris Geer, the system will have a workstation cost of about \$3,000.

Memos is the commercial and marketing organisation for a new storage system which has cost over £1 million to develop so far, and which comes from the Patcenter Laboratories in Cambridge.

No sales have yet been made of the PVC disc-based system, which will hold either 6,000 images, or 160-Kbytes of data, but James Longcroft, company chairman, said they were in serious discussion with five companies, and in more general discussion with about 50 companies worldwide.

Longcroft agreed that the com-

pany has not got its marketing right so far but said just one sale

Hyperion attracts more ventures

THE Hyperion portable IBM-44 personal computer continues to attract new ventures. As well as being sold under a Byres label through Gulfstream Computer Products - Byres is the Canadian venture capital company that last week bought Gulfstream and has a minority holding in the machine manufacturer Oynologic - it is now to appear as the Aile from Slough-based Anderson Jacobson.

Up to now, Anderson Jacobson specialised in terminals and data communications, but has signed an OEM deal with Oynologic to import the 16-bit portable, its first venture into business micros.

The Aile/Hyperion uses the same 8088 processor as the IBM PC, and is claimed to be fully software compatible with the PC. Hardware compatibility will come in a couple of weeks with an expansion unit that will take IBM PC circuit boards.

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Comtech, after raising the money for Memos, and floating the Memos shares on to the Unlisted Securities Market, will retain a 63% holding in the company.

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Longcroft agreed that the company has not got its marketing right so far but said just one sale

COMPANY NEWS



GEER... Workstation cost of about £3,000.

City puts £4.9m into storage system venture

DESPITE the smell of roasted investor still wafting around the financial ruins of Ic Technology, Bermuda-based systems company Memos managed to raise a total of £4.92 million on the London financial markets last week.

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Norsk hopes to raise £40m

by John Riley
NORWEGIAN minicomputer manufacturer Norsk Data last week filed for 1 1/2 million new shares with the New York Stock Exchange.

Making the announcement at Norsk Data's central European headquarters in Newbury, Tor Altheim, vice-president of engineering, said: "This placing should raise £30-40 million and will make Norsk Data one of the more solid companies in this field.

"We have chosen the US stock market because the market is more mature and since our listing in January our price there has doubled. The climate in the US is now, being very pro technology."

Last March, Norsk Data made a private placement of 300,000 shares in London which raised some £10 million, described by Altheim as a "stepping stone" to last week's placing.

The UK is Norsk Data's most important market after Norway and the company announced a 17.3% hike on the first quarter of 1982, and profits are 23.6% ahead.

"These improvements are a continuation of the growth we experienced last year and confirm our optimism about the future of information processing," said IBM chairman John Opel.

The continued progress in the results drove IBM shares up to 17.3%, leaving few commentators in any doubt that a £123 figure, maybe even £150, is now a real prospect.

Part of the improvement, particularly in the profits, arose from IBM's continued success in shifting customers from leasing machines to buying them. Purchases mean revenue now, while leasing, though profitable, means

loss.

But maybe not enough attention is being paid to the risks that success will bring another round of anti-trust activity in the US and elsewhere.

Same again

COMPUTERVISION says profits will fall 24% to about £7 million for the first quarter compared with the same period of 1982. President James Barrett said that first quarter net profit would be the same as for the last quarter of 1982.

Saab sales up 10%

SAAB-SCANIA, the Swedish motor and aerospace group, has increased its first quarter sales by 16%. Outgoing managing director Sten Gustafsson says he expects Saab's sales to grow in real terms, after allowing for inflation, by between 5% and 10% over the next three years.

Cipher's double

US MAKER of data storage equipment Cipher Data Products expects first quarter profits to be \$1.3 million, double the same period of 1982. President Don Muller attributes the improved performance to acceptance of the company's new tape drives by OEM manufacturers.

IBM puts on \$976m profit spurt

IBMs is doing its share to lead the world out of recession with record first quarter sales and profits.

In the wake of the first real spurt in the company's annual profits for almost four years, 1983 is off to a good start with \$8.2 billion sales and \$576 million profits.

The sales increase represents a 17.3% hike on the first quarter of 1982, and profits are 23.6% ahead.

"These improvements are a continuation of the growth we experienced last year and confirm our optimism about the future of information processing," said IBM chairman John Opel.

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SOFTWARE FILE

French airline flies to Univac

Backlog sparks a generator boom

AIR FRANCE is preparing to move its management software to Univac 1190 mainframes when the new and more powerful machines come into service next year.

The French national airline's four main systems - Alpha-3 controlling reservations, Syntac the ticket module, a Gaetan overseeing check-ins, and Sage the flight schedule record - began running on 1108s before being shifted on to four 1100/40s and four 1100/80s. The need to maximise operational efficiency, with world air traffic declining during the recession, has persuaded Air France to make a massive long-term investment in bigger machines.

A team of 160 systems staff is updating the Assembler and Fortran programs to take advantage of the greater speed and storage capacity.

The airline's data processing facilities were moved from Paris to the Riviera in 1977 when the government decided to encourage the decentralisation of service industries.

APPLICATIONS generators came under the microscope in London put on by BIS Applied Systems.

The booming interest in the subject - which reflects a mounting backlog in Britain's data processing departments - was shown by the turn-out of 300 delegates from many of the country's biggest companies for the one-day conference on automating system development.

BIS's September 1982 event, on fourth generation languages, drew only half that number.

The object was not to evaluate the comparative merits of the tools available, but to encourage users to decide what would be best suited to their own computing environment, said BIS director David Broughton.

Major products to come under user scrutiny were Info, the Henco system sold by Deric Computer Systems of Watford; Mathematica's Ramis-11; the Application

Language Liberator, ALL, written by Data Technical Analysts and distributed by CMC; and the German Sofilab's Maestro, marketed by Phillips.

David Whiteside, managing director of Scarab Computer Services, said they had looked at 30 software products and ALL had achieved the best results under tests. It completed 98% of a job conventionally scheduled for three weeks within three hours. Information Builders' Focus had come second.

Deric managing director Mike Hare undertook to write a system using Info while the conference was taking place. He followed a specification given to him by BIS at 9.30am. By 4.30, when delegates were invited to see how he had fared, 16 out of 23 milestones had been passed. Broughton commented: "We never thought that he would get that far, as it was about 12 to 15 man-weeks of Cobol work."

BIS is to unveil its own project support system, Modus, in competition with Maestro, in the middle of the year.

Keith Craddock, data proces-



BROUGHTON . . . "Encouraging users to decide what's best".

'Adapt or die' warning to batch bureaux

BATCH bureaux will be dead in a few years if they don't adapt, warned John Davis, managing director of Fletcher Computer Services, Birmingham last week.

His bureau is adapting by moving towards online database services. Conversion from batch via offline databases to fully online systems is being carried out with the aid of Burroughs' Linc system generator.

Linc - the logic and information network compiler - was introduced by Burroughs late in 1981, but has remained largely untested in this country until now, despite enthusiastic reports from overseas users.

Fletcher recently completed a pilot project for Shell UK Oil to manage its 1,500 road tanker fleet. "They desperately wanted to go live in ten weeks' time and we still hadn't put pen to paper," said John Davis.

"It was equivalent to 100,000 lines of Cobol source code and could have taken us a year to do. So we were in a bit of a hole."

Linc dropped on his desk at the right time, he said. They had persuaded Shell to put back the completion date by only three weeks and, using Linc, had been able to meet that target.

Shell project engineer Dave Morgan was pleased to be able to announce "the most radical change that has ever taken place in the administration of a commercial fleet".

Eight Shell sites and the head office in London are linked to Fletcher's mainframe via Shell's own Wythenshawe computer centre.

The system gives a complete breakdown of operating costs of all vehicles, down to the level of engine components.

With oil companies struggling to break even as the recession continues, transportation of fuel is a vital element in their costs, which can only be effectively controlled by managers if they have accurate and up-to-date information.

"They were putting the pressure on us to deliver in an impossibly short time and without a good system, generators we could not have done it," said Davis.



JONES . . . "Bespoke programming far too expensive."

Flood of Unix applications on the way

UNIX applications software is beginning to trickle on to the market, with an announcement last week of a business package for micros to run under the multi-user operating system.

Until now Unix has been widely acclaimed as the most sophisticated system available to the new generation of micros, but the revolution promised by it has failed to transpire, partly due to lack of applications.

The launch of Precision Software's Unixgen could mark the start of a flood of those missing links. Precision, funded by successful software for the Commodore 64 machine, was set up three years ago by ex-Commodore technical director John Trainer who took on US Unix expert Tom Leonard.

Leonard's Unix package is a marriage of the Unix systems language C and Micro Focus' CIS/Cobol. First versions available are on the Pixel and Bleasdale machines, with plans to convert the software for use on Fortune, Altos and Vics.

Precision intends to promote its Unixgen product in the US from this autumn.

Enya Jones, president of the European Unix Users' Group predicted that there would be many more Unix applications coming on the market in the near future. Boardrooms were now telling DP managers to get portable Unix packages and put an end to constant rewriting, he said. Bespoke programming was now far too expensive.

Leonard welcomed IBM's decision, which became public at the November Fair, to support Unix on its PC, 4300s and Series 1 machines.

Software File is compiled by George Black

MICRO NEWS

Italians follow chip trends

ITALIAN chip maker SGS Ates is following the semiconductor company trend and moving into systems. It has brought out a multi-user business system, the UX16, built around its Z8000 processor second-sourced from Zilog, and running Sunix - an implementation of Unix version 7.

"We see our entry into the business market as a natural extension of our activities," says SGS managing director for northern Europe, Waldo Thorn. "The SGS UX16 is available with business oriented facilities to allow software applications and business automation tasks to be developed both quickly and economically."

The UX16 grew out of a development system to support its range of Z8000 microprocessor products - as Zilog's System 8000 business system grew out of its Z8000 development system - and has application packages available for computer-aided design, business accounting, financial control and office automation.

These generators would not do away with the need for analysis, Sellars warned. System development could still be expected to be a tortuous activity, despite a 10-1 improvement in programming productivity, he said.

Keith Craddock, data proces-

(\$7,000) and 170,000 Francs (£17,000) because it argues the machine fits neatly into a slot for office automation.

The French nationalised company says the cheaper micros work out too costly for a firm when introduced in large numbers in the same way - leaving a middle range below the mini ready to be occupied by the Micros.

Thomson-Brandt's decision to launch production in France of the Micromega is clearly dictated by the success of the Apple and the arrival of IBM's personal computer on the French market - of which only about 500 will be made in Brest.

Thomson holds a 33% voting stake in Fortune, although its shareholding in the American company dropped from 21.6% to 17.4% following the recent flotation of its shares on the New York stock exchange. But the French firm remains the main foreign partner in Fortune.

Thomson is confident it can develop sales of the Micromega - priced at between 70,000 Francs (£7,000) and 170,000 Francs (£17,000) because it argues the machine fits neatly into a slot for office automation.

It expects that the private sector will provide only 32% of orders with 68% going to government departments and publicly owned firms.

Thomson is one of two major OEMs Fortune sells to - the other is US company Bunker Ramo - that do not compete on a mass basis, but are incremental to Fortune's own business, says Fortune's marketing vice president David Van Den Berg. Bunker Ramo sells primarily to banks and brokerage firms.

Fortune itself is turning its marketing attention to direct sales to large organisations. This route has been important to Fortune in the US, where customers include Ford, the Bank of America and Bell Laboratories.

Fortune's recent offering on the New York over-the-counter market raised more than \$90 million, and it has a further \$20 million line of credit from the Bank of America. So far it has spent more than \$9 million on R&D.

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Japan's UK expert investment begins

by Kevin Cahill

The first Japanese investment in UK expert systems formally commenced this week when the Polytechnic of The South Bank started two students working on expert systems for Sord Computers of Tokyo.

The two students are part of an overall package which will cost Sord about £30,000 a year over the next three years and is intended to result in commercial packages for use of Sord's rapidly lengthening list of microcomputers.

According to the director of Knowledge Based Engineering (KBE) centre at the poly, Annie Brooking, the first systems her staff will develop will centre on self-tutoring systems in maths and English for use of Sord's M3 micro.

Although a principal objective of the Sord South Bank collaboration is the production of commercially usable expert systems, from which the poly will derive a 10% sales revenue, the Sord sponsored students will engage with other staff at the KBE centre on basic research into expert systems.

Brooking is already engaged in some of this research and her joint application for an Esprit grant from the EEC is thought to be one of this country's front runners for that money.

The KBE centre was set up about six months ago by Brooking, who believes that such centres are the only way for the UK to retain

its current lead in artificial intelligence and expert systems.

According to Max Bremer, who is head of the Open University's KC Systems department and who is also on the advisory committee to the KBE, the UK will lead the world in artificial intelligence and knowledge-based engineering over the next few years. The Japanese believe this, having drawn substantially on UK sources like Philip Treleven of Newcastle University and Roger Needham of Cambridge to develop their expert system components of the Fifth Generation Computer project.

Sord's president Takayoshi Shima, who used the occasion to indicate that the desk top array processor his company is developing will be available next year, said that the investment at the polytechnic was just a first step in UK collaborations.

BROOKING . . . wants cash.

Zilog's pirate woes grow

It is nothing like as widespread as the NEC Japanese copy, and I would expect any East German device to be viewed with suspicion over here.

Chip distributor Hi-Tek is also dubious about such a device. "If it is just a copy, then there are lots of questions on the quality that would need to be answered," says marketing director David Greenfield. "There is no point in having the cheapest chip around if it doesn't work. Even the really low cost video application companies have very rigorous quality control."

"We are worried because the East German chip is an unauthorised copy," says Zilog's UK managing director Phil Pitman, "but we know very little about it really. There are already various incarnations of Zilog's original Z80 design around. Apart from Zilog itself, versions are made under licence by Mostek, SGS Ats and Sharp."

Micro News is compiled by Robert Parry

PROFILE



LAMOND... An eagle over his US counterparts.

Britain's own home-grown IBM-watcher

IBM-watching is a whole industry in the US. A typical IBM-watcher is an individual who gathers intelligence information about Big Blue, and earns a living from market reports and consultancy services to IBM's competitors, and to stockbrokers.

Fred Lamond is our home-grown IBM-watcher. His fluent command of the French language gives him an edge over his US counterparts who often have to speak through interpreters at conferences.

His style is different, too. Whereas US-based IBM-watchers employ armies of sidekicks to make their jobs easier, Lamond does not even have a secretary. And where they lay much emphasis in information for investors, Lamond concentrates on IBM's technical side.

This approach gives Lamond a fresh perspective on the rationalities behind IBM's moves.

For example, he contends that IBM's entry into the Personal Computer market is at least as much a defensive as an expansionary move.

"Ever since Tandy became the first personal computer manufacturer to announce an IBM 3270 terminal emulator on its TRS80 in June 1981, personal computers have become potential replacements for all 3270 terminals, especially those used for accessing personal computing programs such as IBM's VSIC, CMS, ADI and Planode packages," says Lamond.

"Since IBM sells the Personal Computer on both sides of the Atlantic, not only through independent retail chains but also through its direct sales force in quantities of 20 or more, this proves that it regards its existing medium to large computers users as an important PC outlet."

"Isn't it about time we had a Lamond's Law?"

10 YEARS AGO

FROM COMPUTER WEEKLY OF APRIL 26, 1973: A report commissioned by the Conference of Industrial Research Associations stated that the National Computing Centre was ineffective and that its links with industry were weak. The allegations were refuted by the NCC... Logica resigned from the Software Houses Association, leaving the SHA ranks sorely depleted. ICL launched the 2903 aimed at the lower end of the market. Racial-Milgo won Queen's Award for export performance.

PLATFORM

Pennymentality—when pounds are needed

TIME is running out on attempts from many quarters to coax, cajole or goad the holders of the national purse strings into creating the climate in which major new information technology industries can be built up.

Yet it is painfully plain that such an initiative can come only from government and cannot be generated within the industry as it exists, since control of companies accounting for by far the larger share of the industry's sales resides elsewhere in Britain.

Their masters decide on new products and new plant in terms of global strategies, or the reactions of New York Stock Exchange analysts, whichever comes first.

It is pointless, meanwhile, to compare the new government-provided research and development budget of £230 million for "future industries" with what James Callaghan spent in 1978/9, even if it is 135% more in real terms. The new funds are a mere 10% of what the Mitterrand government has been planning to spend this year, next year and right up to 1988 on an ambitious, not to say spectacular £14,000 million plan to emulate Japan.

It is Jean-Pierre Chevenement and his successor as French Minister of Research and Industry, Laurent Fabius, not Callaghan who needs to be scored over. It is the workings of the development contracts placed by America's Department of Defence that should be closely studied.

DOWNTIME

DEC users coin it

Lamond now seeks to demolish a theory formulated by a long-established guru of IBM-watching, Herb Grossch.

Grossch's Law states that for any given sum of money, a single large processor will always give greater performance and memory capacity than multiple smaller processors.

At last week's IAL Gemini conference, Lamond on IBM, he conceded that since the announcement of the IBM 4300 series in January 1979, Grossch's Law has been turned on its head.

From then until the announcement of the 3083 processors in February 1982, IBM 4341 processors offered a much better performance/cost ratio than the larger 3083 series, making it more economical to grow by adding processors to existing ones rather than replacing the existing processors.

BUT Lamond argued that the 4341 is more competitive against the look-alikes offered by the plug-compatible manufacturers, and that many users want to move to a distributed data processing environment under the MVS operating system.

Lamond may question La- mond's intellectual challenge to Grossch, but his credentials are impressive enough. He is an economics graduate from Cambridge and Chicago Universities. He has worked in data processing since 1960 (not as long as Grossch, who worked inside IBM itself) starting in systems analysis with Sperry Univac, moving on to export sales and technical support with English Electric Computers followed by consultancy work with Lenaco Systems and Research.

Lamond moved to independent consultancy in 1975. According to IAL Gemini, more than 2,000 participants have acclaimed his seminar.

"Perhaps if I mention about this, I'll get invited to that, too."

Liveware File

by Don



Computer Weekly

Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS

Thursday, April 28, 1983

GATT — a lot of pious nonsense

AN international group of 19 private but influential individuals is working towards a more open exchange of technology information across country boundaries and more liberal attitudes to international trade in services. The so-called International Committee on Trade in Services is working on reports it hopes to put before the next meeting of world government ministers involved in the General Agreement on Trade and Tariffs (GATT).

Whether such a group can be successful is open to question. But any work which draws attention to the mockery known as GATT can only be welcomed.

GATT is little more than a lot of pious nonsense which supposedly opens up government contracts to any suppliers, regardless of their nationalities. But it is that bastion of the free world, the US, which makes the agreement worthless to companies on this side of the Atlantic as far as selling in the US is concerned.

For example, the US has managed to get exemptions written into GATT so that agencies including its Department of Transportation, postal service and Department of Energy are not covered by the agreement. Yet contracts from the UK equivalents are open to US firms.

European companies are further hampered by the Buy America Act, introduced in 1933 to protect US firms during the slump. This demands that companies bidding for central government contracts must manufacture in the US.

Any hints of European countries imposing moderate restrictions on government contracts have seen US firms bleating about unfair trading. IBM, for example, threatened the UK government with GATT rules over the contract for the Driver and Vehicle Licensing Centre.

It is interesting that there are six US people on the International Committee on Trade in Services. It is to be hoped that they and their colleagues can do something to shame those countries which do little more than pay lip service to GATT.

If any readers would like to participate in the study, I will be happy to provide further information. The findings will be given to those who take part.

G. LONGWORTH
Senior Consultant
DP Methods Division
National Computing Centre
Manchester.

Rethink telecoms

CRITICS of the European telecommunication industry came out in force last week.

In Birmingham, Michael Corby, director of the Telecommunications Users Association, said that the government had the structure of its telecommunications mechanism wrong. He recommended that it throw in the towel and begin again.

In Holland, Computing Services Association director-general Doug Eydons attacked the club of European PTTs, the Conference of European Posts and Telecommunications, as a price-fixing cartel. He sees the monopoly positions of European PTTs as a major distorting obstacle for multinational computing services companies. But he European Commission says it is powerless to act because the CEPT is not a legal entity.

And a group of international business and government leaders has banded together to fight what it sees as "the proliferation of national restrictions to international information flows".

The government, of course, has put forward its Telecommunications Bill in the hopes of going some way towards meeting the latter two criticisms. But with ever louder hints of a June election in the air, it may find by default it is following Corby's recommendation that it or its successor must begin again.

That would be no bad thing. While the principle of setting British Telecom free is generally seen as a major step towards liberalising the telecommunications industry, the mechanism chosen falls short of a well thought-out policy.

And of course, if we should actually win, the Americans can say that it was their hardware which did it for us.

It may be small, but it looks like a real computer. I want one.

Chad

J. P. BENNETT'S letter (Computer Weekly, April 14) on the article "Invitation to FORTH" suggested that Acornsoft's FORTH should not have been omitted as it is "one of the most powerful versions on the UK market".

Though this may be true it is an entirely unsupported assertion as, though the tape has been sent out, no manual is available; and it is impossible to use the tape without it.

LETTERS

Design investigation

MANY organisations are currently struggling with a 5%+ maintenance workload and they know from practical experience the cost of not getting things right at the design stage.

The problem is finding a way of designing systems that will meet management objectives and user needs while at the same time being able to accept the inevitable future changes.

The National Computing Centre, as part of a project sponsored by the EEC, is currently investigating systems design methods with a view to establishing what a design method should provide, and how existing methods match this ideal.

Unfortunately what is ideal for one organisation may not be so far another and different applications within the same organisation may call for different approaches. It seems likely that there will be many "ideals" depending on circumstances. Certainly there is no shortage of methods. About 80 have been identified so far and doubtless there are more. Some of these are likely to be more closely related to development activities outside the design area, particularly to requirements analysis, and some cover other areas as well as design.

While much work has been done on the development of methods, guidance on the selection of an appropriate method is rather more scarce. To help in such an assessment, questionnaires are being prepared in which participants will be able to indicate their needs of a design method and also their experience in the use of any method, whether proprietary, publicly available, their own, or some combination of these. Similarly vendors of methods will be able to indicate the attributes of their particular approaches.

If any readers would like to participate in the study, I will be happy to provide further information. The findings will be given to those who take part.

RODNEY HYLTON-POTTS
27 Chancery Lane
London WC2A 1MT.

The Editor welcomes letters commenting on subjects published in Computer Weekly, or on original topics. All letters must be accompanied by the writer's name and address, not necessarily for publication.

Sharing of experience

ONE of your recent issue carried an advertisement for CMC's range of factory data processing equipment, indicating that many manufacturing companies were slow to automate their production control but were forging ahead with plans for office automation. This may be the case with the larger firm typical of CMC's prospects but, across the business community as a whole, office automation appears not to be well established.

The various suppliers of hardware set out an impressive showcase of their products in every medium from the trade Press to peak-time television. What is missing for most business customers is some general perspective of how all this new hardware relates together, what real business needs new technology can answer and what investment in it can be justified.

One body tackling this type of issue is OFIX (the Office of the

Babbage Institute

YOUR note (Computer Weekly, April 7) on the appointment of Dale Johnson as associate director of the Charles Babbage Institute doesn't do justice to the founder of that body. This was Erwin Tomash, president of Data Products Corporation. The first issue of the Institute's Newsletter (Vol 1 No 1, May 1, 1979) says: "Feeling that there was a need to be met to document the history of the 'information revolution' Erwin Tomash founded the Charles Babbage Institute in late 1977, providing \$150,000 of seed money. Continued funding will come from private sources, both individuals and organisations."

JACK HOWLETT

York's Prolog

YOU describe the York portable Prolog system as a commercial product (Computer Weekly, March 3). To avoid misunderstandings, I should like to clarify the basis on which it is to be distributed.

The system was developed as a research tool, and we are making it more widely available in the belief that doing so will benefit the academic and industrial research community. Unfortunately, lack of resources prevents us from offering formal support.

The portable Prolog system is based on an interpreter written in a portable subset of standard Pascal, and has been run on over 15 different machines. Further details are available from Maureen Bulmer in the Department of Computer Science, University of York.

J. M. SPIVEY

Privacy Bill campaign

THE Computer Law Committee of the Society of Conservative Lawyers has severely criticised certain aspects of the Data Protection Bill which is going into its committee stage in the House of Commons.

In my capacity as chairman of the committee, I have received a note from the Home Office saying that the government is prepared to consider widening the exemptions from registration (and therefore the ambit of the Bill) if categories of harmless data can be satisfactorily defined.

We would be interested in hearing from your readers with their thoughts on the data, or data users, who should be exempt from

protecting that data to outside parties.

G. LONGWORTH
Senior Consultant
DP Methods Division
National Computing Centre
Manchester.

Forum for Unix users

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Wednesday May 4 10.00-20.00 hrs
Thursday May 5 10.00-18.00 hrs

Entrance to the exhibition is by business registration on a ticket which is FREE if obtained in advance or 250 BFR if obtained at the door.

Compec Europe is presented by Computer Weekly in association with Ecopress.

No manual

J. P. BENNETT'S letter (Computer Weekly, April 14) on the article "Invitation to FORTH" suggested that Acornsoft's FORTH should not have been omitted as it is "one of the most powerful versions on the UK market".

Though this may be true it is an entirely unsupported assertion as, though the tape has been sent out, no manual is available; and it is impossible to use the tape without it.

A. J. LAZZERINI
User Group/UK

Plexus Computers

Langley Mill

Notte

Chad

New Tandem will take the Girobank's strain

CHAMPAGNE corks were popping last week at Tandem, the US-owned world leader in failsafe computer systems. The company had just signed a £4 million contract with the National Girobank for the larger part of a new and long overdue banking system to replace an existing ICL DME system.

Tandem is supplying four of its NonStop computers: two at the bank's head office and one each at the regional offices in Liverpool and Birmingham. The Tandem machines will process the accounts in the regional offices, and will be linked to the central mainframe in Bootle.

Girobank has long needed a better system to cope with the 5,000 new accounts each week. The present one is still based on the original system set up when the bank was formed by the Post Office in 1968.

Since then the bank has introduced bank accounts with personal loans among other facilities, and

has seized a total of over a million personal and business accounts from the big four banks.

The banking software that keeps ledgers and updates accounts is having to be completely rewritten to take advantage of the new

operating systems and communications facilities. But particularly important, says Jim Nix, systems project manager, is that the new system will be structured properly.

The development team is designing with requests for new banking facilities, all of which have to be implemented on the computer before being released to customers. The present software, says Nix, is now too convoluted to allow quick enhancement.

All Girobank transactions are processed at the headquarters in Bootle. The Post Office acts as branches, but simply send cheques cashed and deposits made to the Girobank for processing.

"TDL's was the most advanced equipment available at the time," enthuses systems development manager Don Levin.

The Girobank is working with the software consultancy A. D. Little on development of internal electronic communications network with circuits shared by text data and speech.



Girobank... new systems in the offing.



Who pays best — large or small installations?

WHICH pays the best: a large installation with processors at different sites, or a small microcomputer user? The answer seems to depend on what job you are doing, if the results of a recent survey made by Surrey-based Computer Economics are to be believed.

Computer managers, shift leaders, and to a lesser extent operators seem to fare much better at large than small installations. For programmers and systems analysts the installation size is unrelated to pay.

No surprise here. Managers at larger installations are likely to have more responsibility and more people reporting to them than their brethren at smaller sites.

THE table shows average salaries of six different job categories at four different sizes of installation, expressed as a percentage of the overall average for each job category. Group 1 is small installations, typically a minicomputer with local terminal network. Group 2 is typically a multiple processor or mainframe with a limited online terminal network. Group 3 is a large installation with mainframes at different sites, possibly linked, and an extensive online terminal network with database. Group 4 is a group of large centres containing several multiple processor mainframe systems linked together with online database and big terminal network.

Where are VDU operators?

IS there such a thing as a professional VDU operator? It seems that such a breed is rare, at least in Plymouth, where the Health Authority tried to recruit people to help computerise 280,000 patient medical records.

So instead the authority hired 12 part-timers for the tedious work of copying from manual files into a minicomputer driven by software from British Medical Systems.

PUZZLER

THIS diagram represents a chessboard with two discs positioned on central squares. The problem is to put 14 more discs on 14 other squares, in such a way that no three of the 16 occupied squares lie on the same horizontal rank (eight squares), vertical file (eight squares), or diagonal (of any length).

Clearly, the six squares flanking the two existing discs are immediately ruled out as possible sites for placement. See page 55 for solution.

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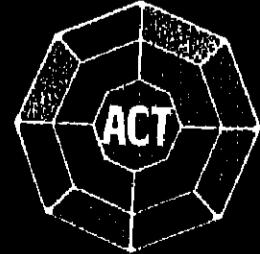
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PEOPLE



■ David Jeffrey has been appointed services manager at Microserve. He was previously UK service manager at Commodore Business Machines having previously worked at Rank Xerox before that.

■ Bob Woods has joined the newly-formed Kongberg Systems Technology as sales manager. He went to the Kongberg Group in 1982 from Philips, where he was a sales executive.

■ Electronic components distributor VSI Electronics UK has appointed Richard Rickard as operations director. He was previously the company's operations manager.

■ Gerry Richings has been appointed director of training at BIS Applied Systems. For the last five years he has been responsible for regional development at BIS, establishing two new offices during this time.

■ David Musson has been appointed director of marketing at Prestel. Previously residential services manager for Prestel, he has worked in British Telecom's video data service for eight years.

■ Crown Computer Services has appointed two directors to the board. They are Vic Jeffs, general manager, who has been with the company since its inception in 1981; and Kevin Kelly, market development manager of Beaufort Computer Services, who is currently responsible for directing and co-ordinating the marketing developments of that company and Crown Computer Services.

■ Gould SEL has expanded its field sales force in South-east England with the appointment of two sales executives. Ian Boyd, formerly with Geisco, will cover the Berkshire area; and Steve Nutt, previously with Burroughs Machines, will cover the South-western quarter of South-east England.

■ Brian Iverson, formerly head of publicity and promotions with ICL, has joined DBA Computer Services as marketing director.

■ John Pearson, who was at Hewlett-Packard for 20 years, latterly as group finance manager, has been appointed financial director at GPU Computers.

■ Appointed product manager, software tools, at Computer Technology, Sandra Marks (above) will be based at Hemel Hempstead. She previously worked for Datacom as marketing executive as a marketing executive in London.

■ Brian Manley, managing director of MEL, the Philips UK defence and avionics company, and managing director of the Philips Systems Group, has been appointed to the board of Philips Electronics and Associated Industries. The appointment gives him responsibility for Pyle Telecommunications and Philips Research Laboratories.

DIARY

MAY 2

Visit to Future Technology Ltd. BCS Glasgow microcomputer sub-group. Details from W. Jack on (041) 552 4400, ext 3615.

MAY 4

Computer revolution — when will it begin? Branch AGM. IDPM Central London branch, Altergo, Imperial House, 15-19 Kingsway, London WC2, 6.00.

How to choose a micro. IDPM Sussex branch. Town Hall, Market Square, Horsham. 7.00.

MAY 5

The work of the National Computer Centre, Branch AGM. IDPM Birmingham branch. New Imperial Hotel, Temple Street, Birmingham. 7.30.

MAY 11

AGM followed by computer graphics. BCS Bristol branch. St. Vincent's Rocks Hotel, Clifton. 7.15.

CONFERENCES

■ KNOWLEDGE-based expert systems have been in the limelight lately, and the Japanese fifth generation computer project can take some of the credit for this. Hexadecimal Press is aiming to cater for the growing interest in the subject with a short seminar focusing on the practical skills needed to build expert systems. Speakers are practitioners who know the techniques and pitfalls involved in designing such software. Several currently operational expert systems will be analysed and demonstrated. UK venue is Middlesex Polytechnic. It will be held on June 22 and the fee is £64. Details: Hexadecimal Press, 23 Torrington Gardens, London N11 2AB.

■ DATA Training is to hold its IBM Cobol programming courses, which include ICL, in Manchester from August 30-September 30, and in London from May 23-June 24. There are further London courses in July and August. Each course lasts five weeks and costs £1,205. It is designed to train new entrants into the data processing field to program IBM mainframe computers using the Cobol language. The training is essentially practical with programming exercises, such as the writing and testing of fairly complex programs. Further details from Philip Corker on 01-404 5444.

■ COURSES being organised by Compuser during May include



■ Atari Home Computers Division announces the appointment of the following: Peter Hredrek (left), 35, market analyst, spent the past ten years in communications for the Royal Corps of Signals. Martin Walker, second right, 30, joins as training manager, worked for ICL for 14 years for ICL and Rank Xerox and latterly for Harris Systems as marketing support manager. Michael Garrard (right), 33, joins as software engineer. Michael Wilding (second left), 20, joins as software engineer.

■ Lipman Management Resources has appointed Frank Swift as customer services manager. He was previously in sales and marketing support manager at Grand Metropolitan Information Services.

■ Exxon Office Systems has appointed Alwynne Sinclair as marketing manager, covering the West End of London and the Western Home Counties. He was previously with IBM as a salesman for its office products, joining Exxon Office Systems as a salesman in 1980.

■ Technical director at Encelot Systems is to be Martin Reynolds (above) who is 28. He joins from Inner Product.

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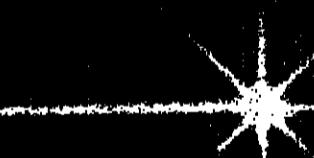
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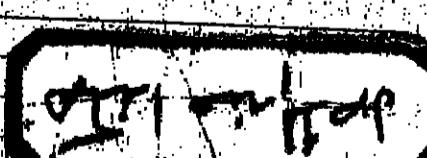
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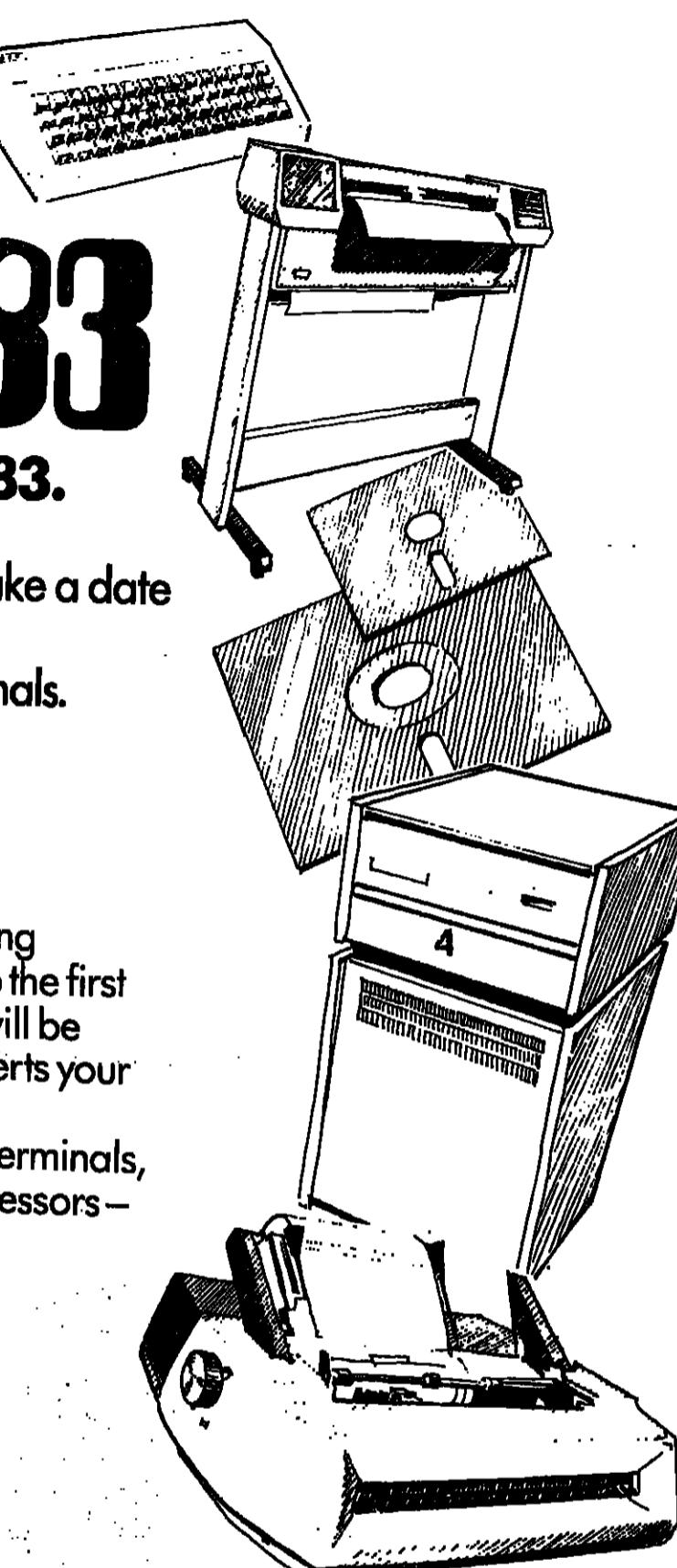


Return to: Compec Scotland '83 Tickets, Reed Exhibitions, Surrey House, 1 Throwley Way, Sutton, Surrey SM1 4QQ.

COMPEC SCOTLAND'83



Compec Scotland is a Computer Weekly exhibition co-sponsored by Systems International, Computer-Talk, Software and Practical Computing, and is organised by Reed Exhibitions, all members of Business Press International Ltd.



COMPEC EUROPE PREVIEW

The European market is becoming increasingly important for Japanese and US manufacturers in information technology. The European Community does not want to remain an idle spectator and has launched its own initiative into research and development called Esprit.

An interview with Christopher Layton, one of the driving forces behind Esprit, appears on this page together with an examination of the CAD/CAM market. The next pages concentrate on the broader market and Compec Europe which starts next week at the Centre International Rogier in Brussels.

Europe responds to the Japanese challenge

The European information technology market will be boosted by the announcement of the EECs Esprit programme. Boris Sedacca talks to Christopher Layton, an EEC consultant about the programme

ACTION by the European Commission to promote the community's computer and telecommunications industries has begun to gather momentum with the launch of the European Strategic Programme for Research in Information Technology (Esprit).

In the UK, the British government has set up the Alvey Committee which has called for a UK research and development programme in response to Japan's ambitious "Fifth Generation" computer project.

Alvey concentrates on information processing whereas Esprit addresses the whole area of office automation and flexible manufacturing.

While research and development have been the initial focus of Esprit, it is now clear that the programme forms part of a broader strategic plan for market development of the European electronics and information technology industries.

The European Commission is

currently reflecting on the broader strategic task for a European response to the American and Japanese challenge, and from the start this included the development of a European Commission, a position which placed him one level down from Industry Commissioner Viscount Davignon.

Layton, who spent 10 years working for the EEC, is still a highly placed consultant there. In an interview with Computer Weekly, Layton said: "This will entail a lot of fresh thinking on the part of the Community. The aim is to mobilise the marketplace more effectively, by means of large-scale networks, for example.

"However, Esprit is at the stage at present and the rest are reflections. The full Esprit programme should be going to the council any time now and should be announced in the middle of May. One billion units of account will come from the Community and will be matched by another

"Philips has taken the lead in many ways because it does not have a rich government to subsidise its home market. The company's chairman has stated in the past: 'If we do not combine now, we shall cease to be among the first rank industrial nations'."

Layton will be one of the key speakers at a forthcoming confer-

ence organised by the Policy Forecasting Unit entitled "Fifth Generation of Computers" on 25 May at the Institute of Chartered Accountants. The conference will examine the Japanese challenge and the US response to it.

"It was agreed that Community expenditure should be matched by an equivalent industrial expenditure. This is different from the Alvey proposals where up to 90% of some expenditures are to come from the government. The Commission takes the view that if industry is not prepared to put money in, then it cannot give proper priority to the project.

"Industry was reluctant to participate initially, but there has been a fundamental change in attitudes over the last three years by the large European companies which now recognise the threat they face.

"The Japanese have proved they can take away US dominance in specific sectors of information technology where they have pushed out whole ranges of products," says Layton.

The first part of the conference will examine the nature of the challenge, while the second part will concentrate on specific programmes. Other speakers will also include consultant Dr Ian Mackintosh, Dr Horst Huenke, manager for the Esprit pilot projects at the EEC, Alastair MacDonald, undersecretary of the Information

Technology division at the Department of Industry, and Clive Sinclair.

IBM UK development director John Fairclough will also speak.

"As the largest European computer manufacturer, we felt it was right to give the company the opportunity to state its position," explains Layton.

The first part of the conference will examine the nature of the challenge, while the second part will concentrate on specific programmes. Other speakers will also include consultant Dr Ian Mackintosh, Dr Horst Huenke, manager for the Esprit pilot projects at the EEC, Alastair MacDonald, undersecretary of the Information

Technology division at the Department of Industry, and Clive Sinclair.

national projects have failed. Esprit is a great test case for the Community as it will herald the new industrial revolution.

"Information processing is seen by the Commission as a key growth area for the Community as it shifts away from agricultural issues, and within information processing, Esprit is the top priority to get through.

"However, the Commission has long said that there must be an overall strategy for Europe, including the development of markets. But market creation does not necessarily involve large expenditures because that is when incomes begin to be generated," Layton concluded.

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CAD can be wonderful but too few know it

A EUROPEAN computer market forecast by International Data Corporation (IDC) clearly indicates that at present there is a low usage of Computer Aided Design/Computer Aided Manufacture (CAD/CAM) among manufacturers, even in those industries most likely to benefit from its introduction.

The table lists the five most likely manufacturing industry sectors to benefit from CAD/CAM usage and shows the percentage usage in each industry. Although the sample sizes are small, the results show that only 16% of companies in the engineering and car and aerospace industries currently use such systems.

Furthermore there is a tendency for such users to be larger companies. Out of 18 CAD/CAM users, 13 of them (72%) employed more than 500 people.

These results correspond closely to recent government studies on the use of CAD/CAM in industry. These studies also noted a generally low usage and a tendency towards larger companies, despite the availability of CAD/CAM systems which can run on minicomputers and which are within the budget of medium sized companies.

The problem according to IDC is making the smaller companies aware of the advantages CAD/CAM can offer them.

One government report states: "Any difficulty in implementation concerns not the inherent technical capabilities of the system but rather the information gap that has to be bridged in order to make companies aware of what CAD/CAM systems can offer and the effort required to tailor commercial

Industry	No. in sample	CAD/CAM users	%
Chemicals	17	1	6
Fabricated metal	14	3	21
Mechanical machinery	39	6	15
Electronic machinery	22	5	23
Transportation equipment	10	1	10
Sub total	102	16	16
Other	87	2	2
TOTAL	189	18	9

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TABLE 1: BRITISH IMPORTS OF PERIPHERAL EQUIPMENT (BY MAIN SUPPLIERS)

	Jan-June	Jan-Dec
Belgium-Luxembourg	1,422	1,555
Canada	2,701	5,792
Denmark	2,716	8,362
France	17,879	16,585
Germany (West)	26,096	54,081
Iceland	7,186	17,760
Italy	15,007	29,117
Japan	12,896	14,012
Netherlands	14,345	29,772
Spain	3,652	7,516
Sweden	7,104	20,629
US	201,211	416,000

TABLE 3: BRITISH EXPORTS OF TOTAL PERIPHERAL EQUIPMENT (BY MAIN MARKETS)

	Jan-June	Jan-Dec
Belgium-Luxembourg	1,000	2,000
Canada	6,850	13,368
France	19,761	79,204
Germany (West)	40,092	91,014
Italy	21,483	46,936
Netherlands	6,226	16,060
Norway	6,705	15,599
Saudi Arabia	9,008	18,000
South Africa	8,791	18,059
Spain	8,255	18,059
Switzerland	7,618	18,159
Sweden	6,024	12,311

TABLE 5: GERMAN IMPORTS OF INPUT-OUTPUT UNITS BY MAIN SUPPLIERS (BY VALUE)

	Jan-Dec	Jan-Dec
Argentina	1,000	2,000
Austria	5,049	4,175
Belgium-Luxembourg	2,658	2,103
France	10,044	12,526
Iceland	13,504	9,283
Italy	32,579	34,391
Japan	21,450	11,501
Netherlands	5,831	3,252
Sweden	25,086	41,897
UK	63,398	63,945
US	128,176	118,572

TABLE 6: GERMAN IMPORTS OF INPUT-OUTPUT UNITS BY MAIN SUPPLIERS (BY VOLUME)

	Jan-Dec	Jan-Dec
Argentina	No.	No.
Austria	1,215	639
Belgium-Luxembourg	3,117	4,095
France	8,889	7,624
Iceland	11,856	6,135
Italy	32,729	27,784
Japan	90,521	47,963
Netherlands	5,278	3,903
Sweden	20,763	9,838
UK	62,107	50,440
US	129,992	134,630

TABLE 7: GERMAN EXPORTS OF INPUT-OUTPUT UNITS BY MAIN SUPPLIERS (BY VALUE)

	Jan-Dec	Jan-Dec
Austria	9,119	9,369
Belgium-Luxembourg	6,427	7,709
Denmark	3,124	4,399
Finland	2,106	2,061
France	17,484	17,424
Netherlands	15,395	17,238
Norway	6,188	6,685
Saudi Arabia	1,177	1,846
South Africa	2,150	910
Spain	4,249	6,246
Sweden	6,077	6,246
Switzerland	3,165	3,573
UK	16,559	15,984
US	15,701	6,772

TABLE 8: GERMAN EXPORTS OF INPUT-OUTPUT UNITS BY MAIN SUPPLIERS (BY VOLUME)

	Jan-Dec	Jan-Dec
Austria	No.	No.
Belgium-Luxembourg	9,326	8,375
Denmark	6,171	6,517
Finland	5,155	5,074
France	2,373	1,272
Germany	26,178	15,014
Iceland	15,343	12,251
Netherlands	12,902	8,996
Norway	1,727	993
Saudi Arabia	436	326
South Africa	2,014	3,500
Spain	6,323	4,004
Sweden	5,192	3,806
Switzerland	12,212	10,462
UK	25,321	17,042
US	17,930	8,781

TABLE 9: BRITISH IMPORTS OF PERIPHERAL EQUIPMENT BY PRODUCT GROUPS (BY VALUE)

	Jan-June	Jan-Dec
Disc storage units	75,127	157,393
Magnetic tape storage units	16,010	32,970
Other storage units	5,135	9,833
Printers	56,593	132,091
Readers and punches	1,925	3,972
Visual display units	45,671	96,641
Other terminals and consoles	55,922	32,165
Other peripheral units	115,798	239,635

■ Continued on page 19

TABLE 10: FRENCH IMPORTS OF INPUT-OUTPUT UNITS BY MAJOR SUPPLIERS (BY VALUE)

	Jan-Dec	Jan-Dec
Argentina	12,113	5,591
Canada	2,502	491
Germany (West)	17,351	10,550
Ireland	7,323	4,612
Italy	40,096	30,265
Japan	12,366	7,167
Netherlands	9,643	1,591
Sweden	12,857	14,012
UK	60,662	46,113
US	135,483	86,440

TABLE 11: FRENCH EXPORTS OF INPUT-OUTPUT UNITS BY MAJOR MARKETS (BY VALUE)

	Jan-Dec	Jan-Dec
Argentina	1982	1981
Canada	3,151	1,028
Germany (West)	16,012	6,228
Ireland	5,102	1,479
Italy	52,727	36,490
Japan	50,027	15,873
Netherlands	6,481	1,387
Sweden	16,692	6,029
UK	50,462	31,219
US	132,279	83,301

TABLE 12: FRENCH EXPORTS OF INPUT-OUTPUT UNITS BY MAJOR MARKETS (BY VOLUME)

	Jan-Dec	Jan-Dec
Australia	397	438
Belgium-Luxembourg	6,786	4,712
Germany (West)	32,073	29,311
Israel	3,126	283
Italy	13,944	16,804
Japan	983	1,801
Netherlands	4,735	4,461
New Zealand	92	124
Saudi Arabia	1,179	335
South Africa	2,869	1,372
Spain	5,269	1,718
Sweden	5,217	6,241
UK	35,319	31,207
US	12,932	11,784

TABLE 13: DUTCH IMPORTS OF INPUT-OUTPUT UNITS BY MAJOR SUPPLIERS (BY VALUE)

	Jan-Nov	Jan-Nov
Argentina	1,532	960
Austria	632	222
Belgium-Luxembourg	1,637	131
Canada	3,466	2,012
Denmark	321	325
France	5,671	5,471
Germany (West)	9,363	2,000
Ireland	520	885
Italy	9,237	8,742
Japan	4,071	2,840
Spain	321	103
Sweden	2,907	2,800
UK	411	131
US	33,088	24,549

Margaret Park takes a look at what the 13-strong UK contingent has in store for visitors to Compec Europe next week



Brian Jackson, of Future Computers, with his star exhibit for Compec Europe, the FX20 personal computer.

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IBM 'thinkalike' is star of Future at Brussels exhibition

A 13-STRONG contingent is crossing the water from the UK under the auspices of the Business Equipment Trade Association, for the third Compec Europe. A spin-off from the annual London Compec, it takes place at the Centre International Rogier in Brussels from May 1-3.

One of the British exhibitors is Future Computers, a two-year-old micro systems house based in Purley, Surrey, and managing director Brian Jackson said his company's star exhibit would be the new FX20 personal computer which he described enthusiastically as an IBM PC "thinkalike".

Distribution of the FX20 has

not begun yet, and production at the Thorn EMI plant, spawning ground also for Sinclair's Spectrum, is just underway. But according to Jackson the FX20, which he describes purely in terms of its advantages over its more famous IBM rival, has a lot going for it.

"It's much cheaper than the IBM PC at £1,875," said Jackson, "and has twice the speed and twice the memory and disc capacity with two 800K floppy discs."

The FX20 will also arrive with its own local area network, will plug in IBM bus cards and run software written for the PC.

Future Computers' machine was launched at the Which Computer? Show earlier this year and Jackson said the company had made an effort to design a computer specifically for the European business market.

Future Computers, which produces other products in the FX range such as a terminal and a networking processor, already has European distributors but looks on Compec Europe as a shop window for those not yet exposed to its products.

Plessey Microsystems is in the BETA party too, showing its range of semiconductor memories and bubble memories, plus two micros.

One of the micros, System 19, is well established in the UK, and has British Telecom as its biggest user. The other was partially launched at Compec UK last autumn as a 68000 board and memory. Known as the System 68, this machine will be presented to the US market in Brussels with the addition of input/output ports and Winchester disc storage up to 140 megabytes.

System 68 runs under the Unix operating system. System 19 on the other hand is based on multiple Z80s, runs under CP/M and uses CP/MOS, an internal communications software package. British Telecom uses these in a number of applications - in directory enquiries, for example.

This is Plessey Microsystems' first visit to Compec Europe and technical author Alan North explained the decision to exhibit this year as part of a recent effort to sell direct to Europe.

Pericom Data Systems from Milton Keynes will arrive with its 7800 range of VDUs which have been selling since January 1982. The range offers high resolution graphics control and includes a new micro edition of the 7800 which, according to Steve Williams, one of the sales team, can be upgraded to become either a micro terminal, a graphics terminal or a Freesel receiver.

The 7800 range is manufactured by Pericom itself in Milton Keynes. The seven-year-old company has been to Compec Europe before but does all its Continental selling through appointed distributors.

Also in the UK team is Newcastle's Real Time Systems, the sole UK distributor for a US software company called Whitesmith.

Whitesmith produces compilers in the language C which will run native on the Digital Equipment's Vax and PDP/11 under any of DEC's operating systems plus Unix versions 6 and 7.

Massachusetts-based Whitesmith has also produced its own complete rewrite of Unix called Idris which runs on the 8080 and 68000 processors and on the PDP/11.

Algol 60 took the second approach, and most other programming languages followed their convention that the -ELSE associates with the most recent -THEN.

CODING

Lasagne code is tastier than spaghetti code . . .



... but neither method is the cordon bleu, says Joe Celko

COMPEC EUROPE '83

THE structured programming revolution taught that the use of the GOTO statement would lead to code that resembled a plate of spaghetti.

The only problem is that in finding this trouble spot in the old way, the structured programmers fail to see a trouble spot in the new way.

In place of the tangled web of labels and GOTO statements, structured programming converts us layer after layer of nested selection statements. This "le-spaghetti code" is better than the "spaghetti code" of the past, but neither is terrific.

The selection statement come in several flavours, the IF-THEN flavour, the IF-THEN-ELSE flavour, and the CASE statement flavour. The first two use a Boolean expression as their control and the latter uses an integer expression.

It is really too bad that the CASE statement is so rare. The lack of it forces the programmer to write chains of nested IF-THEN-ELSE statements, like this:

IF (p=1) THEN stmt1
ELSE IF (p=2) THEN stmt2
ELSE IF (p=3) THEN stmt3
ELSE IF (p=4) THEN stmt4

The reason they are there is that the programmer duplicated the first card, and re-punched only the columns he needed to make the second card. He could have punched a single card reading:

IF (p OR q) THEN stmt1 ELSE stmt2

These schemas are sometimes hard to see actual practice because one of the clauses is an implicit NULL statement hidden in an IF-THEN.

Once the levels of nesting have been flattened out a bit, then the expression can be reduced by using Boolean algebra and a little common sense.

Other tricks, taken from the McCarthy operators in LISP, are

also used by some optimising compilers. This schema:

IF p THEN q
THEN stmt1
ELSE stmt2

is equivalent to:

IF (p AND q) THEN stmt1

ELSE stmt2

and this schema:

IF p THEN stmt1

ELSE IF q THEN stmt2

These are sometimes hard to see actual practice because one of the clauses is an implicit NULL statement hidden in an IF-THEN.

The quick way to convert the table to code is to pick one condition and use it as the control expression in an IF-THEN-ELSE statement. The two branches of the IF-THEN-ELSE statement are sub-selection tables made up the conditions and actions for which that condition is TRUE and FALSE respectively.

This procedure is continued for each sub-table until the entire decision table has been converted in a nest of IF-THEN-ELSE statements.

The problem with this approach

is that there are many ways to generate a program from a single decision table. This is a blessing in one way because it means that a decision table represents all possible valid programs. By having the decision table in the program documentation, we can re-structure the program should anything change without having to mess with horrible nested IF-THEN-ELSE statements.

The bad part is that the number of generated statements is huge. If there are no conditions, then you have a possible way to pick the highest level control expression. Each of the two branches of the highest level control expression has (n-1) possible control expressions. And so on and so on.

For two conditions this is simply

two possible arrangements and three conditions have 12 possible arrangements. But four conditions have 576 possible arrangements. It gets even worse as n gets bigger.

There are procedures which will

provide good results most, but not all, of the time. The idea of them is pick a pivot condition which has the smallest number of "don't care" entries in it.

The generated code will use the smallest number of Boolean expressions to arrive at an action.

The algorithms will not generate

nonsense has to come from knowledge of the code. For example, knowing if two conditions include or exclude each other can allow them to be combined or allow one to be removed.

The best approach to really tricky logic is to use a decision table. This has become a lost art, but it needs to be revived. Once the decision table is set up, the programmer can optimise it and check for contradiction and redundancy with a decision table further.

As a rule of thumb, a human being can mentally handle only five things at one time. Try and keep the lasagne down to three or fewer levels.

(a) Here is a simple decision table, where 0 means "don't care", 1 means "TRUE" and -1 means "FALSE", with conditions C1, C2 and C3, and outcomes of statements S1, S2 and S3. It can be converted to code by inspection.

C1:	+1	-1	0	
C2:	-1	+1	+1	-1
C3:	0	+1	-1	-1

S1 S2 S3 S4

(b) If first pivots on condition C2 to become:

THEN C1:	0	
C3:	+1	-1

S3 S4

ELSE C1:	+1	-1
C3:	0	

S1 S2

(c) and finally becomes:

IF C2 THEN IF C3 THEN S3 ELSE S4

ELSE IF C1 THEN S1 ELSE S2

A human being might have generated this "lasagne" code from the same program specification. The reason that a human being would turn out such code is that it has a nice symmetry and the conditions appear in the order that they were identified.

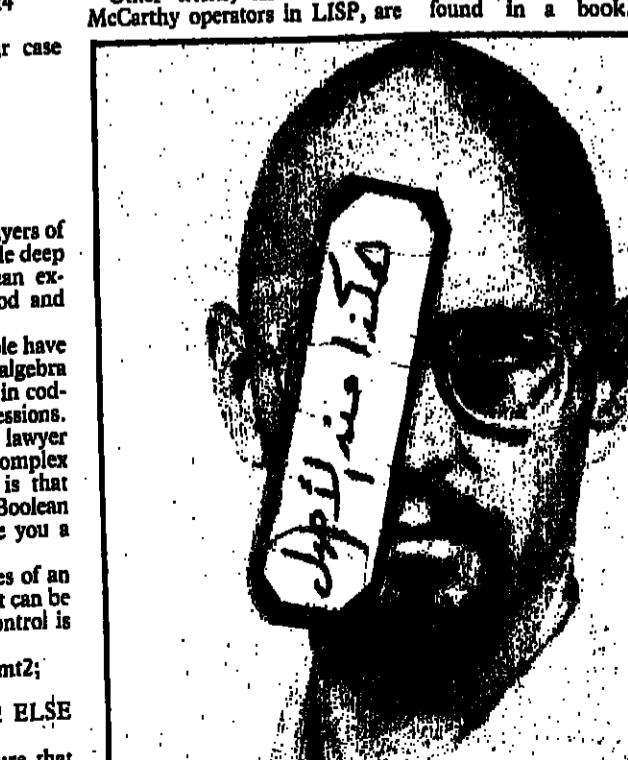
That is, C1 is at the first level, C2 is at the second level and C3 is at third level. Would you see that these two blocks of code are equivalent by inspection?

IF C1 THEN IF C2 THEN IF C3 THEN S3 ELSE S4

ELSE S1

ELSE IF C2 THEN IF C3 THEN S3 ELSE S4

ELSE S2



CELKO... Structured programmers fail to see a trouble spot in a new way.

Experts can't decide if the future's rosy or Orwellian

Over 700 people heard professionals' opinions at a symposium on computer culture. Howard Karten reports

ISSUES of privacy, potential mass unemployment, the future of intellectuals, and other computer-related topics were the order of the day in New York early this month, as some of the most widely-known computer experts and specialists from several disciplines gathered to discuss the effect of computers. In the process, the audience was treated to several rosy outlooks, some Orwellian nightmares, and a squabbling panel of artificial intelligences, complete with name calling and considerations of whether electric blanket controls can be said to think.

More than 700 people turned out to hear a variety of experts speak at the Symposium on Computer Culture sponsored by the New York Academy of Sciences, a non-profit making educational and cultural organisation. The academy's membership consists of more than 45,000 scientists from the US and 84 other countries, representing every scientific discipline.

Harley Shaikeen, a Massachusetts Institute of Technology research fellow in the MIT program in Science, Technology and Society and adviser on automation policy to several public, private and labour organisations, observed that defining productivity as output per unit of input was too restrictive. Rather, he said, productivity should be defined as the opportunity to be productive for all who want to work.

Workplace automation can be viewed as a continuum, Shaikeen believes. At one end is what he called "electronic Taylorism," after F. W. Taylor, the father of time and motion studies circa 1911. Electronic Taylorism consists of centralised command of the workplace (e.g. factory or shop floor), deskilling of workers, and increased machine pacing of workers.

At the other end are what Shaikeen called human-centred systems, which are decentralised, take advantage of worker creativity, and feature optimal interaction of people and computers irrespective of control.

Since engineers are biased in favour of control and predictability, electronic Taylorism is not surprisingly the favoured method of management.

The not-so-obvious cost,



New York... A cultured setting for the Symposium on Computer Culture.

Professor of Industrial Engineering and UN consultant Seymour Melman. Workplace democracy is a requirement for productivity growth, Melman told delegates.

Pamela McCorduck, a journalist, science writer, and Columbia University (New York) lecturer, observed that no one truly knows whether the advent of expert systems will herald a new golden age or something more sinister. In the past, mechanical amplifications of human abilities, such as electrification and motor cars have brought about wholly unforeseeable changes, she noted.

On the positive side, the advent of expert systems could make knowledge more democratic, since expert systems - unlike experts themselves - are easily replicated and accessible. Since constructing expert systems inevitably involves extensive interviewing into thought and logical processes of experts, psychologists are sure to learn more about human cognition and how people reason, McCorduck noted.

On the negative side, if knowledge is indeed power, then a monopoly on expert systems could cause an undesirable concentration of power in some hands.

Unlike many symposia on computers, which tend to draw heavily from those involved in the computer industry, this one drew from a broad spectrum of workers. NYAS spokesman said every state in the US and some 46 foreign countries were represented. Some of the professionals who turned out for the conference were college physicist, law professor, professional negotiator, internist, and many people working in the humanities.

The development of expert systems is currently being impeded by the lack of really good, high-speed specialised computers. However, several countries are working to remedy this situation. Examples are the work on intelligent knowledge-based systems (IKBS) in the UK, the KIPS (Knowledge Information Processing Systems) in Japan, and work

panel discussing artificial intelligence and human thinking was treated to a rare display of academic antagonism. MIT's Marvin Minsky, who earlier in the afternoon delivered an address with the characteristically modest title "Why computer science is more important than anything else", labelled "idiotic" a proposal about artificial intelligence put forth by co-panelist John Searle, University of California (Berkeley) philosophy professor.

Minsky is highly optimistic about the impact of computers on society and on the ability of humans to duplicate most processes, given complete information about how those processes function, but his scrappy attitude on the panel and later in a Press conference seemed to several of the journalists arrogant and perhaps less than collegial.

One of the points made by Searle was that although it is possible to construct a machine that "appears to think", "many people believe to be demonstrably false the proposition that computers have thought processes."

A good deal of the panel discussion seemed especially obscure or obscure - a university physics professor seated next to the reporter seemed hard-pressed to contain his laughter at the group. "It's a delightful fantasy word they're talking about," he noted.

Co-panelist Seymour Papert, creator of the Logo language and a colleague of Minsky's at the MIT Artificial Intelligence Lab, observed that "there will be machines that will be better at your job than you are", such as medicine, picking stocks, or the travel agent business - and that people ought rightly to be frightened about this development.

Proceedings of the symposium will be published as the annals of the New York Academy of Sciences (2 East 63rd Street, New York, NY 10021), around December.

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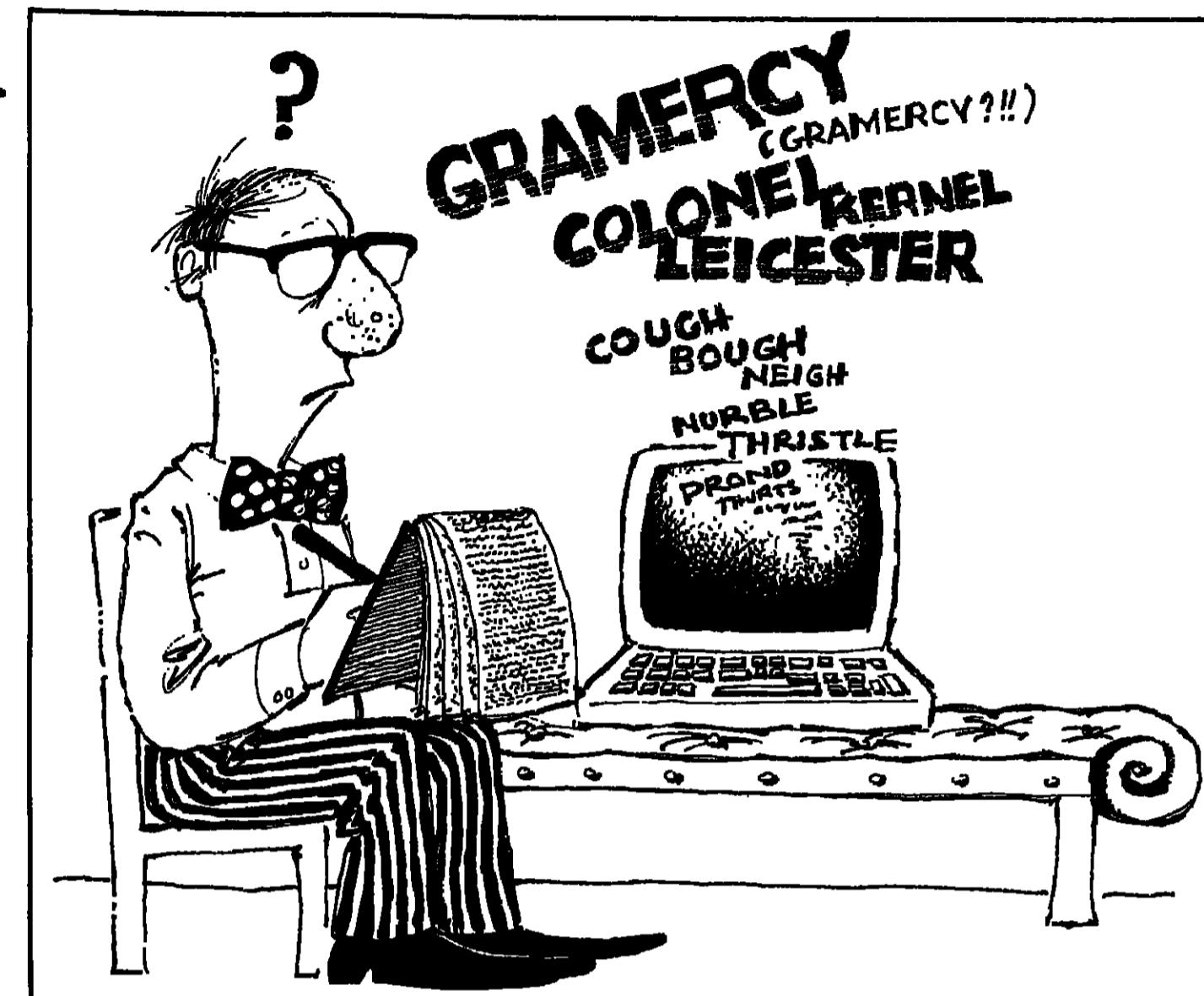
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FEIGENBAUM... List of expert systems is growing daily.

ARTIFICIAL INTELLIGENCE

Can psychology help computers to understand natural language?



Do you know what "gramercy" means? Or find you can't recall a word you want to describe a particular concept? Aberdeen University's Dr Kenneth Gilhooly outlines a project to apply human psychological processes to research in artificial intelligence.

BOTH artificial intelligence and psychology have a strong interest in natural language processing. The ultimate goal for artificial intelligence research on natural language is to develop a computer system that can act as though it understood natural language input (ideally in spoken form) and produce natural language outputs

formation on word spelling, pronunciation and meaning (as in real dictionaries). Being a "mental" lexicon, however, it cannot be assumed that access to one type of information (eg pronunciation) will guarantee access to other types of information (eg meaning).

An example here might be knowing that "gramercy" is a word and knowing its pronunciation but being unable to retrieve a meaning for it. Another example would be having a concept in mind but being temporarily unable to locate the phonological form of the desired word (ie the "tip-of-the-tongue" phenomenon).

Psychologists have devoted considerable research to questions of access and organisation in the mental lexicon. That there is a real problem here is perhaps indicated by estimates of the size and efficiency of the lexicon.

I wish to outline a project involving the computer modelling of human vocabulary abilities, although the main thrust of my work is psychological, it is hoped that it may have implications for artificial intelligence and possibly some practical applications.

Reasonably well-educated adults have been estimated to know 75,000 different words and can recognise any one of them in spoken or written form very rapidly; similarly, in speech and writing, appropriate words are generally retrieved at a rapid rate. Since each word is associated with two different output codes (spoken and written) and two corresponding input codes, clearly the amount of information involved is very large.

Cues to the structure and function of the mental lexicon in humans have come from a variety of (mainly) single word tasks presented both in normal literate subjects and to brain damaged patients suffering from a range of language disorders.

The most striking evidence comes from the very specific losses of function seen in certain clinical conditions. For example, some patients display reading errors and difficulties only with long words or with words that have irregular spellings (eg "colon!"), while other patients cannot read short function words but can read content words; and still others have reading difficulties, not only with pronounceable non-words (eg "brone") and function words, but also with some of the abstract

content words (eg "concept"). Many other, often surprising, patterns of impairment have also been reported, eg failing to read concrete words while retaining the ability to read abstract words; retention of ability to read irregularly spelled words aloud but with loss of comprehension of those words. These and other reports of "dissociations" of function are useful sources of evidence concerning the processing subsystems involved in normal reading.

The overall conclusion from

Although there are a number of theories, the question of exactly how information in the mental lexicon is structured and accessed is still open,

studies of both brain-damaged and normal subjects is that although there will be three input access files corresponding to written (graphemic), phonological and internally originating semantic cues. The graphemic input access file, for example, would take a spelled-out word as input and yield the addresses of corresponding entries in the phonological and semantic data stores.

At present, it is intended that there will be three input access files corresponding to written (graphemic), phonological and internally originating semantic cues.

The graphemic input access file, for example, would take a spelled-out word as input and yield the addresses of corresponding entries in the phonological and semantic data stores.

The information in the three "content" stores would be as follows. The graphemic code would simply be a letter code of numeric equivalent. Phonology would be coded numerically in 1:1 correspondence to the International Phonetic Association scheme. In the semantic store it is proposed to characterise each word by codes giving its syntactic status and semantic domain, followed by codes giving values on the semantic features relevant to its domain.

I want to see how well the model will cope with a variety of tasks when it has a large and expanding vocabulary. The main task to be tackled initially will be that of single word naming in which a phonological code is to be output given a spelled-out word as input.

A particular point of psychological interest will be whether "disabling" different parts of the program will produce error patterns similar to those characteristic of various groups of brain-damaged humans. If so, then the underlying theory embodied in the program would be supported.

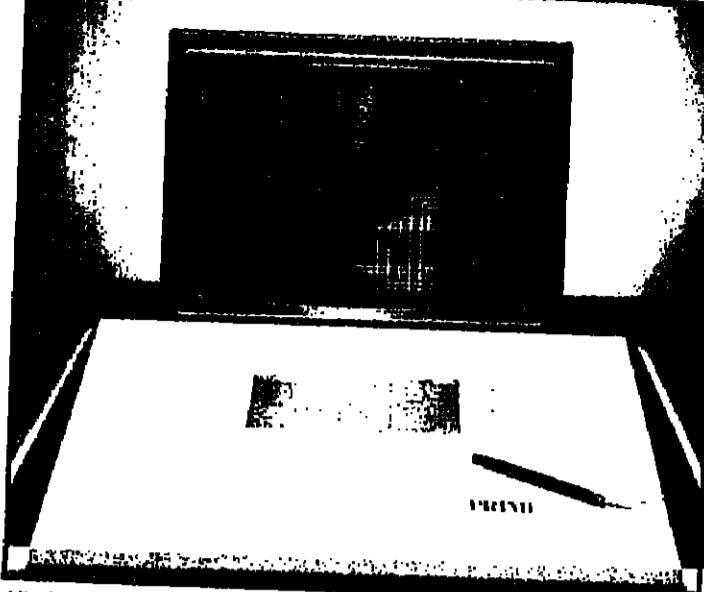
The organisation of the program will be modular. This will ease program construction and should allow for a variety of functional dissociations when simulating language disorders. Also, the incorporation of new items into the system will be made easier by a modular organisation.

"Content" information pertaining to a given word will be clearly distinguished from "address" information. At least three forms of "content" information will be stored per word, viz spelling, sound (phonology) and meaning.

The three types of information will be located in three different stores. Entry to each store will be via address codes. The address codes will be located in a number of access files.



GILHOOLY... Psychologist interested in artificial intelligence.



The Electronic Design Management System from Prime Computer.

Easy-to-use system for electronic design

PRIME Computer has launched in the UK the EDMS Electronic Design Management System, described as the first computer aided engineering and design system to cover every aspect of the design of digital circuits from initial concept through analysis and simulation to final design in one integrated system.

EDMS has been designed to achieve overall improvements in product quality and costs and in the speed of the product development cycle.

It is said to be easy to use and requires no programming experience. It runs on Prime computers and colour graphics workstations and features a component library, a design database, editing, report writing, electronic design utilities plus interfaces to many commonly used CAE application software packages.

Based on Prime's database management system, DBMS, it also incorporates many controls and tools required by project managers.

To develop schematics with EDMS the engineer selects a page format and chooses components from the library. Non-graphic in-

NCR accounts for up to 200 hotel guests

A FRONT desk accounting system called Quicksilver for use in hotels with up to 200 rooms has been released by NCR. Essentially a powerful computer programmed to operate as simply as a cash register, Quicksilver also provides vital management information, producing instant reports on room status, guest accounts and occupancy statistics.

A memory based room table holds information for up to about 200 rooms, and each room may have up to two folios attached to it.

The guest accounting function operates from registration to check-out, and is started by keying-in a room number which is automatically checked against the room table for availability. When a room is allocated, a new guest folio is headed up and the cashier indicates whether it will be the standard room rate, an adjusted one or a special arrangement.

Quicksilver provides for the quick entry of room groups can use common stationery.

NCR (CW), 206 Marylebone Road, London NW1 6LY. Tel: 01-388 8244.

around £6,900, including software, hotel management may now benefit from complete control from check-in to check-out, says NCR.

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Office range

THE new colour co-ordinated Office range of modular office furniture and filing systems comprises interchangeable components designed to provide a variety of different system layouts to suit particular office tasks. Illustrated above is the Data Desk and smaller VDU Desk linked by a 90° connector.

The new modular shelving in the background can be adapted to store printout binders, disc packs, tapes, IBM magazines and disc cartridges.

Ofrex (CW), Ofrex House, Stephen Street, London W1A 1EA. Tel: 01-636 3686.

The system comes as a free-standing terminal with full type writer keyboard, a visual display screen, 27 programmable multifunction keys, a slip receipt and journal printer, and integrated digital cassette. Up to two local or remote cash drawers are available as options.

Quicksilver provides for the quick entry of room groups can use common stationery.

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50% saving claimed for terminal

DATA Design Techniques is marketing a microprocessor-controlled video terminal that it claims costs up to 50% less than some of the terminals it emulates.

The display is of a high quality with a monitor which has 256 geometry on all sides, 10% linearity, 20MHz bandwidth, 19.2KHz horizontal frequency and low power dissipation.

The 12-inch, P31 phosphor, anti-glare screen displays 24 lines of 80 columns plus a 25th status line. Characters are formed using a TV raster scan technique and the format is 7x9 dot matrix with 9x12 resolution. Spacing of two dots between characters and three lines between rows provide a legible, crisp character.

The terminal, known as the VT-4100, incorporates full editing facilities.

Typical pricing for the VT-4100 at the quantity six to 19 level is £322. Delivery averages 30 days.

Data Design Techniques (CW), 68/70 Tewin Road, Welwyn Garden City, Herts. Tel: Welwyn Garden 34774.

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NCR (CW), Ofrex House, Stephen Street, London W1A 1EA. Tel: 01-636 3686.

Controllers offer powerful local graphics

SINTROM has launched in the UK two controllers from Raster Technologies that offer graphics system designers powerful local graphics capability as well as unique application transportability between 500 and 1,000 line monitors.

The display is of a high quality with a monitor which has 256 geometry on all sides, 10% linearity, 20MHz bandwidth, 19.2KHz horizontal frequency and low power dissipation.

The 12-inch, P31 phosphor, anti-glare screen displays 24 lines of 80 columns plus a 25th status line. Characters are formed using a TV raster scan technique and the format is 7x9 dot matrix with 9x12 resolution. Spacing of two dots between characters and three lines between rows provide a legible, crisp character.

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The Datadress AP10 Automatic Addresser from Kemp Application Sales.

Turning the computer into an automatic addressing machine

ADDRESSING mail with labels has always been a time-consuming and expensive operation because of the double operation required. Kemp Application Sales claims to have overcome this problem with the introduction of the Datadress AP10 Automatic Addresser — a peripheral that is said to turn any computer in common use into an automatic addressing machine.

The Datadress AP10 is capable of direct printing up to 10,000 addresses an hour of all kinds of mailed items which need not be sorted. Further, it offers unlimited selection and will print additional information if necessary.

They have over 100 graphic commands and integrated debug tools to reduce application development time.

Both the Model One/40 and the Model One/20 are dual mode compatible to allow the user to interchange between lower cost, lower resolution graphics output and the higher 1024x1024 graphics.

Using a single command, the user can select whether to display image memory as a full 1024x1024 array or as a 512x512 window into image memory. This application

runs under each of the drop-in typeheads to give a direct, clean and dry addressing operation similar to that of a typewriter.

If necessary, the Datadress AP10 printer can be supplemented by an RS10 microcomputer and the DP10 keyboard with visual display unit. These, with the Lomax software package will provide every recorded address its own code with which it can be activated, so that it can be selected and if necessary brought to the display in a fraction of a second.

With the introduction of the Datadress RS/DP10 has built-in operating instructions, which make it simple to use. From the point of switch-on, all operations occur in dialogue form to guide the operator step-by-step. A protection facility guards against faulty operation — for example, stops are programmed into the system which automatically prevents double addresses from being entered.

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The direct printing operation is effected by fine offset drop-in typeheads (eight maximum), which eliminate any embossing, liquid inks, spirit solvents, spray ink or water.

Instead, a print ribbon

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Fast storage device

THE UK launch of the Model 7200 cartridge tape drive, a high capacity, high speed storage device designed to provide data back-up and interchange functions for the Black Box microcomputer system using high capacity Winchester hard disk drives, is announced by Ral.

The free standing unit houses a streamer tape drive, an 1.81 microprocessor-based controller, and a dual voltage power supply. The drive is interfaced via an IEEE 488 interface bus.

Two models of the drive are available, storing 10 and 20 megabytes respectively, on industry standard 1/4-inch magnetic tape cartridges.

The drive operates in a streaming mode which eliminates the interblock gaps and thus allows almost all of the magnetic tape to be used for data storage.

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Principal Lecturer - £11,831-£15,018
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Further details and application forms from the Deputy Head of Personnel, Brighton Polytechnic, Moulsecoomb, Brighton BN2 4AT. Tel: Brighton 0222 852855, Ext 2537. Closing date May 17, 1983.

(3428)

UNIVERSITY OF NEWCASTLE-UPON-TYNE
Computing Laboratory

SYSTEMS PROGRAMMERS DISTRIBUTED COMPUTING

The Computing Laboratory is looking for two systems programmers for a small group concerned with the development of a distributed computer system. The main service computer is to be a VAX 11/780 and we want to take the opportunity at this time to provide the network for information and distribution of computing power as the way forward for the computing service.

Applicants should be graduates and preferably have some systems programming experience, particularly of networking protocols and technology.

One of the posts is permanent and appointment will be made at an appropriate point on the 18/20 scale according to experience and qualifications.

Further particulars may be obtained from the Deputy Head of Personnel, University of Newcastle-upon-Tyne NE1 7RU. Tel: Newcastle-upon-Tyne 01-241 2801, Ext 2537, together with the names and addresses of three referees, should be listed not later than 10th May 1983. Please quote reference CW.

The second post is tenable for three years only. Appointment for this post will be at an appropriate point on the 18/20 scale according to age, qualifications and experience.

Further particulars may be obtained from the Deputy Head of Personnel, University of Newcastle-upon-Tyne NE1 7RU. Tel: Newcastle-upon-Tyne 01-241 2801, Ext 2537, together with the names and addresses of three referees, should be listed not later than 10th May 1983. Please quote reference CW.

UNIVERSITY OF NOTTINGHAM
RESEARCH ASSISTANT
POSTS IN THE
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MATHEMATICS

Applications are invited for two posts attached to an SERC-funded research project to develop numerical integration methods and techniques of graphical display for Bayesian inference. The appointment is for a period of three years. Salary will be on the 18/20 scale, £9,376-£11,105, for applicants having a PhD or equivalent research experience, or on the 18 scale, £9,600-£11,105, for applicants having a bachelors degree. Applications must be submitted by 1st October.

The project will require a range of skills including Numerical Analysis, Programming and Computer Graphics. A 8000 based, single user work station operating under UNIX and a high resolution colour graphics subsystem is required. Applications are therefore encouraged from persons having some combination of experience and interest in these subjects/equipment.

For further particulars, write to: Professor A. F. M. Smith, Department of Mathematics, University of Nottingham, Nottingham, NG7 2RD, or telephone 0602 359171. Detailed letters of application, enclosing e.v., names and addresses of three referees and indicating availability should be sent direct to Professor Smith by 1st Oct.

Max. 1000 words

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Library Analysts are responsible for liaising with libraries on all aspects of the service and defining details of new features and services. Applicants should have either library or computer qualifications, and should, ideally, have had previous experience of computer based library systems.

The starting salary will be at an appropriate point, according to age, qualifications and experience on the scale £6,375 to £11,105.

Application should be made by letter and should include the names and addresses of three people who would be prepared to provide a reference. The letter should be accompanied by a curriculum vitae setting out details of education, qualifications, previous experience and present salary. Applications should be sent within fourteen days of the University of Bristol, Queens Road, Bristol BS8 1RJ.

For additional details of the post, either write to SWALCAP or telephone on Bristol 0800 2072 279913.

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DEC Financial Programmers

Surrey to £12,000

If you have a minimum of 2 years experience of programming commercial applications, preferably in BASIC + or BASIC + 2 on PDP11 under RSTS/E or VAX/VMS, then here is an opportunity to develop your career with a successful commercial software house. Our client is involved in all aspects of software production and installation and currently requires several programmers. Contact Brian Coates.

Contact Terry Harvey

'C' & Ass'bler Programmers

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Contact Brian Coates.

Contact Terry Harvey

Comms. S/W Design

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Develop your career and your existing communications software skills by joining a company already firmly established in this high growth sector of the computer industry. We are seeking software people with experience in developing 3270 compatible systems and as much experience as possible in X.25 and L.A.N. products. Experience in C or PASCAL using M68000 and/or TI9900 would be useful. Contact Terry Harvey.

Contact Brian Coates.

Contact Terry Harvey

Senior H/W Design Engr.

Surrey to £14,500

Candidates will need to have several years comm. software design and implementation experience to advise up to project leader level on existing projects. The assignment calls for up to 18 months in Rome with a permanent base in London. Overseas experience cover married accompanied status if required. Excellent company and long term career prospects. Contact Brian Coates.

Contact Terry Harvey

Comms. S/W Design Italy

London base to £17,000

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Contact Brian Coates.

Contact Terry Harvey

Development Manager

Bucks. to £15K + car

Ideal candidates will have mixed H/W and S/W experience gained in product design and development. You will control a small, expanding team of programmers and engineers. Development systems include Tektronix M.D.S. and PDP11 with UNIX. You will be expected to prove your technical ability and demonstrate your management awareness. Short duration visits to U.S.A. Contact Terry Harvey.

Contact Brian Coates.

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Wilts./L'don. £8K-£10K

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Contact Brian Coates.

Contact Terry Harvey

Sen. System Engineer

N.W. M'sex. £9K-£13K

This position calls for mixed technical and project leader talents to be combined with the manner for regular client contact. Candidates will need design ability in bit slice, Z80, 8086, M68000 or similar micros on communications terminals, or interfaces in local or wide area networks. You must be prepared for regular European travel of short durations. Contact Terry Harvey.

Contact Brian Coates.

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The people being sought must have an interest in medical computing as well as having a sound data processing background. The appointments offer the challenge of joining a new and embryonic project from which the results could have a considerable benefit to the community as a whole.

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You will need a minimum of 5 years experience in systems design programming and implementation of interactive systems preferably in MUMPS or BASIC. Ideally you will have a knowledge of modern data management and communications techniques. You will be required to work closely with medical staff at all levels and will be responsible to the Computer Project Manager for the success of this system.

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Please contact Ruth Grace, Computer Project Manager at U.G.C. for an informal chat on (01) 387 0300 Ext. 114 or 115. For an application form and job description please contact: Rob Irwin, Administrator, Regional Computer Centre, Harold Wood Hospital, Gobions Lane, Harold Wood, Essex, RM2 0BE. Tel: Ingelbourne 71621. Please state which position you are interested in. Closing date for completed applications: 18th May, 1983.

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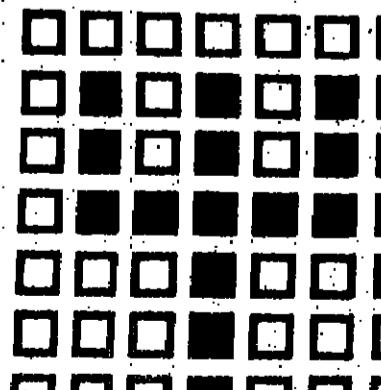
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Telephone No: (0235) 21840 ext 4391.

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Applicants will require a good honours degree preferably in computer science.

(3411)

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For further information, and a discussion in the strictest confidence, please contact C. D. Stock, General Manager, ICL Group, Lloyds Avenue House, 6 Lloyds Avenue, London EC3N 3ES, telephone 01-481 8111.

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(3444)

COMPUTER SCIENTIST

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The position will attract a competitive salary together with a range of benefits appropriate to working with a large international technology and research contracting company.

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ROBERTSON RESEARCH INTERNATIONAL LIMITED
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Telephone: 0422 81611

(3445)

User Interface Programming

The Computing Division at the Rutherford Appleton Laboratory provides a service for researchers sponsored by SERC in universities, polytechnics, and its own laboratories. An IBM 3081-D has recently been installed alongside an IBM 3032 and linked to workstations and interactive facilities (PRIME, GEC and VAX) via SERCNET. Developments are associated with exploiting new facilities consistent with a transition from services provided previously.

The User Interface Group is responsible for liaising with users, offering advice and guidance with problems, documentation and user education, implementing utilities and some involvement with developments of the service.

A vacancy exists in this group for a programmer able to specialise in Network Support. It covers all the above areas and requires familiarity with problems of transposing data and programs across networks (academic, national and international) and a number of different operating systems. In addition to the above, the successful applicant will spend some time in general advisory duties.

Applicants should have an honours degree in Computer Science or related subject.

A good knowledge of FORTRAN and the ability to communicate with users is essential for this post. Experience of using a large computer service, preferably IBM based, will be an advantage. Other relevant areas of knowledge are VMS, CMS, MVS/ES, PASCAL, Networking, Graphics and Operating Systems.

The post will be in one of the following grades, depending on your qualifications and relevant experience:

Higher Scientific Officer £26,840-£31,126

Scientific Officer £25,422-£27,399

Some assistance with the expenses incurred in house/sale/purchase may be available.

The Laboratory is a friendly community with its own restaurant and sports facilities nearby.

Benefits include a local travel service, sick leave allowance and generous holidays.

Application forms from: Recruitment Office, RAL, Science and Engineering Research Council, Chilton, Didcot, Oxford OX11 0QX. Tel: Abingdon (0235) 454535 quoting ref: VN144.

Closing date for applications: 19th May, 1983.

Please send full career details or write for an application form, quoting ref. PRB/1, to the Personnel Manager at the address below:

Amersham International plc
White Lion Road Amersham
Buckinghamshire HP7 9LL

TEAM LEADER

up to £12K South Bucks

"to make a significant contribution to our ambitious systems development programme"

Amersham International is a highly successful world leader in the supply of sophisticated technical products for use in medicine, research and industry. Our expanding world-wide business operation calls for a rapid expansion in corporate information systems resources to meet the needs of an ambitious systems development programme covering production, finance and marketing applications.

We now seek a Team Leader to manage a group of programmers/senior programmers working on the development of a range of on-line data base systems for a distributed processing environment. We currently operate an ICL-based network using IDMS data base systems, but are actively reviewing our future hardware needs to upgrade the system. The ability to stimulate, adapt to and manage change is essential.

Candidates should possess:

- ★ extensive COBOL experience
- ★ ideally 2-3 years in a team-leading role
- ★ experience of data base and on-line systems development and
- ★ knowledge of modern programming techniques.

Excellent benefits include relocation assistance to this attractive South Buckinghamshire location.

Please send full career details or write for an application form, quoting ref. PRB/1, to the Personnel Manager at the address below:

Amersham International plc
White Lion Road Amersham
Buckinghamshire HP7 9LL

(3442)

Amersham

APPLICATIONS MARKETING EXECUTIVE

TO: Key Revenue Generators

SUBJECT: Joint Marketing with Third Party Application Software Vendors - MANCOS, FCS-EPS, TELEXEC, NAG, CINTRAN, UNIGRAPHICS, ANSYS, BENDSAFE, ROSE, TRAIN, TOTAL, RAPPORT, GINO-F, AUTOMATE 80, SPSS.

YOU MUST HAVE:

- a background in applications marketing and be currently working with a manufacturer or major software house
- a broad knowledge of significant developments in the industry
- the initiative, imagination, drive and sheer ability to maximise the opportunities offered by the combination of Data General's outstanding product range and third party software.

CHALLENGE:

Here is an already successful project:

- build on it -
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WHAT'S IN IT FOR YOU:

As well as offering a genuine career opportunity, we will negotiate a remuneration package which will attract the best talent available - if you can convince us that you can deliver the goods.

Send your c.v. or write or telephone for an application form to:

John Cunnell,
Personnel Manager,
Data General Limited,
Hounslow House,
724-734 London Road,
Hounslow, Middlesex TW3 1PD
Tel: 01-572 7455.

The new MV/10000 is the most powerful computer in Data General's Eclipse family with support for 192 terminals, up to 16 megabytes of main memory, up to 185 gigabytes of direct access storage, a 100 nanosecond data access time and most price performance.



Data General
We deliver the goods that deliver the goods

DOUCASTER METROPOLITAN BOROUGH COUNCIL FINANCIAL SERVICES

Applications Development Manager

PO1 5-10 £10,860-£12,174

The Computer Division provides a wide range of services and operates a wide ICL 2080 - one under VME and the other under VMEbus. The Applications Development Manager is responsible to the Deputy D.P. & Technical Support Manager and is responsible for the development and maintenance of computer systems, specifically those relating to the systems and programs developed by the Computer Division. The post requires experience in compiling staff and in Systems Analysis design and should also have either a degree or equivalent or qualifications in computing.

Assistance with housing and removal expenses in appropriate cases.

Application forms and further details from: Personnel Manager, Financial Services, 2 Ferry Place, Duxford, Cambs, CB1 3BN. Telephone 0223 22211. Closing date 13th May, 1983.

We are an equal opportunities employer.

3424

THE UNIVERSITY OF MANCHESTER
LECTURER IN ACCOUNTING WITH SPECIAL RESPONSIBILITY FOR COMPUTER PROGRAM DEVELOPMENT

Applications are invited for the above post from suitably qualified candidates with relevant experience, preferably in FORTRAN and BASIC. The post will be responsible for the direction of departmental teaching and research which involve the use of computers - both microcomputers and mainframe systems. The post will also involve the supervision of research students in accounting and finance. Salary: £6,375-£10,300 p.a. Superannuation.

Further particulars and application forms may be obtained from the Personnel Manager, The University of Manchester, Manchester M13 9PL. Closing date 20th May, 1983.

3425

For an application form write to Mrs. E. K. Tyack, Marks & Spencer, Michael House, 47 Baker Street, London W1A 1DN.

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SUCCESS IN THE SOFTWARE WORLD

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CONTRACTS

ICL
 2900 VME IDMS/TP COBOL - CONSULTANTS/SENIOR ANALYSTS/PROGRAMMERS
 PROJECT MANAGERS 2900/1900
 DATABASE DESIGNER
 DATA ANALYSIS ANALYST
 IDMS/DDS VME 2900 SENIOR SYSTEMS ANALYSTS
 1900 GEORGE III, COBOL PROGRAMMERS
 VME 2900 - SUPPORT PROGRAMMERS
 SYSTEM 25 PROGRAMMERS
 DRS/PASCAL PROGRAMMERS
 ME29 IDMS COBOL ANALYST/PROGRAMMERS
 DRS - CIS COBOL ANALYST/PROGRAMMERS
 DRS - CIS COBOL PROGRAMMERS
 IBM

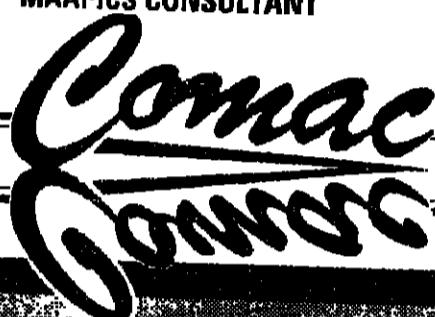
MVS SYSTEM PROGRAMMERS (MAY)
 IMS COBOL/ASSEMBLER PROGRAMMERS
 OS CICS COBOL PROGRAMMERS
 IMS DB/DC COBOL ANALYST/PROGRAMMERS
 MVS IMS DATABASE ADMINISTRATOR
 SYSTEM 38 RPG/III PROGRAMMERS - VARIOUS
 ADABAS NATURAL PROGRAMMERS
 DOS VSE CICS DLI/VTAM SYSTEM PROGRAMMERS
 8100 DPCX PROGRAMMERS AND DESIGNERS (VARIOUS)
 DOS VSE ICCF CICS COBOL RPG/1 PROGRAMMERS
 MAAPICS CONSULTANT

OTHER

PDP11 RSX11M RTL2 PROGRAMMERS
 VAX VMS COBOL PROGRAMMERS
 VAX FORTRAN PROGRAMMERS
 VAX VMS OR RSX11M CORAL 66 PROGRAMMERS
 VAX VMS SYSTEM PROGRAMMERS
 TANDEM NONSTOP 2 SYSTEM PROGRAMMER
 UNIVAC FORTRAN PROGRAMMERS
 MOTOROLA 6085 ASSEMBLER PROGRAMMERS
 MICRO (CPM) SUPPORT/CUSTOMER LIAISON
 TECHNICAL AUTHORS - NUMEROUS
 HP 3000 RAPID IMAGE - COBOL ANALYSTS/PROGS SCOTLAND
 MILITARY/DEFENCE - VARIOUS

OVERSEAS

IDMS/VME/COBOL - ANALYST/PROGRAMMERS - KUWAIT
 TPMS/VME/COBOL - ANALYST/PROGRAMMERS - KUWAIT
 VME/FILETAB COBOL - ANALYST/PROGRAMMERS - KUWAIT
 PRIME/FORTRAN SENIOR ANALYST/PROGRAMMERS - KUWAIT
 HP 3000 IMAGE QUIZ QUICK - CONSULTANTS/PROJECT LEADERS - SAUDI ARABIA
 UNIVAC 1100 DMS COBOL PROGRAMMERS - USA
 RSX11M SYSTEM PROGRAMMER BRUSSELS
 SEL32 MPX ASSEMBLER PROGRAMMERS BRUSSELS



Computer Appointments & Contracts Ltd

27 Town Centre, Hatfield, Herts. Telephone Hatfield (07072) 65699 or 69889. (24 hour answering service)

Top calibre Analysts & Programmers

West London

Our client, one of the fastest growing multinationals in the FORTUNE list of the top 500 companies, is a minicomputer manufacturer with a public commitment to continuing expansion which includes the provision of top quality turnkey services. To this end an independent systems division has been set-up in the UK with European wide responsibilities to offer systems design, special purpose software, systems integration and other services to large corporations across a wide variety of commercial and technical applications.

Several more top flight analysts and programmers are required. A good working knowledge of COBOL, PL1 or Fortran is essential together with hands on experience of Transaction Processing systems or Real Time applications.

The ability to write program specifications will certainly be of interest and candidates for the more senior appointments must be able to demonstrate relevant systems design skills on commercial and/or technical applications.

These positions offer one of the most attractive



Up to £12K+ bonus

working environments in the industry including:-

- The opportunity to extend experience into completely new application areas.
- Positive encouragement to get hands on experience across the product range from micros to £1,000,000 super minis.
- A chance to acquire knowledge of new languages, operating systems and support aids.
- Outstanding opportunities for personal growth, particularly into project management.

The highly competitive remuneration package is complimented by a company car for the more senior appointments and will be earned by more junior staff, on promotion.

In the first instance contact Chris Denington on 01-631 4184 or write to: A&A Consultants (Holding) Ltd., County House, 10 Little Portland Street, London W1N 5DF.

(3130)

DATABASE SPECIALISTS

SUPPORT FOR TOTAL SYSTEMS SOLUTIONS - TO £18K+ CO CAR

One of the major UK Software Houses/Consultancies in the HOME COUNTIES is seeking leading DATABASE SPECIALISTS for key SUPPORT roles in multi-disciplined teams providing TOTAL SYSTEMS SOLUTIONS.

Demonstrable achievements over several years and awareness of current developments in the following DATABASE fields are essential:-

DATA ANALYSIS DISTRIBUTED DATABASE

DESIGN PERFORMANCE

IMPLEMENTATION ADMINISTRATION

Vacancies exist to support the following areas, in which previous experience would be desirable:-

- INTEGRATED OFFICE AUTOMATION/DATABASE INFRA-STRUCTURE ENGINEERING
- COMMAND AND CONTROL ENVIRONMENTS AND RELATED INFORMATION SYSTEMS
- KNOWLEDGE ENGINEERING
- COMMERCIAL AND FINANCIAL CONSULTANCY SUPPORT

For further information please telephone JOHN WILLS at IMPC on 01-486 5644.



Top Jobs For Top Software People
 Insight Marketing & Personnel Consultants

MANCHESTER - Austin House, Charlotte Street, Manchester 1. Telephone: 061-236 7026
 LONDON - 72-76 Marylebone High Street, London W1M 4AJ. Telephone: 01-486 5644

BIS Software Limited is a market leader in providing advanced computer systems to international banks around the world—nearly 300 banks in 51 countries are using our system—marketed under the MIDAS trademark. We have won two consecutive Queen's Awards for Export Achievement (1981 and 1982). In the last year, we sold more of our systems than ever before and current and projected developments enable us to offer exciting career opportunities to experienced people.

For a software company we are unique, specialising in the financial market place, with locations in key countries throughout the world (New York, Los Angeles, Miami, Toronto, London, Luxembourg, Bahrain, Singapore, Hong Kong, Tokyo with Paris and Frankfurt planned).

Programmers

£7,500-£11,000

Now is the time to make a positive
and exciting career move

Career opportunities exist throughout the world, but principally now in London. Because of our growth, supervisory and managerial opportunities continually arise, and appropriate development training is given.

BIS is a fast growing, dynamic company in a strong market place. Its products have excellent references and are being continually enhanced. To participate in this company and personal success story, thereby enhancing your own career and horizons, you need to have a minimum of 18 months experience in RPG II/III with preferably IBM S34/S38 knowledge.

Contact the Personnel Manager on 01-928 3551 or send a brief CV.

(3170)



BIS Software Limited
 York House, 199 Westminster Bridge Road,
 London SE1 7UT
 Telephone 01-928 3551



**PROJECT
LEADER**

**SYSTEMS
ANALYST**

CHELTENHAM

Spirax Sarco Ltd. is an International Company based in Cheltenham and is market leader in the field of Energy Saving Control Equipment for steam water and compressed air services.

We will shortly be commencing an extensive programme of computer systems implementation in Sales, Financial and Manufacturing application areas. In the main, systems will be based on computer software application package solutions.

The following vacancies have arisen:

PROJECT LEADER

We require a Project Leader with the ability to head up a small team of data processing specialists and user department personnel, to be engaged initially in the Sales Order Processing and Accounting areas.

Applicants should have had at least four years' data processing experience at either Project Leader or Business/Systems Analyst level, dealing with commercial type applications.

We are looking for someone aged between 30-35 with a proven track record of successful computer systems implementation.

SYSTEMS ANALYST

To work as part of the Project Team concentrating on manufacturing systems, we require a Systems Analyst with a minimum of three years' experience, preferably with some programming background.

Applicants should have experience of all phases of computer systems project development, especially in the design and implementation of commercial systems. Preferred age is 28-35.

Attractive salaries will be linked to age and experience and there are additional fringe benefits in keeping with a progressive company, including non-contributory pension scheme and BUPA membership.

Please apply in writing, giving details of career to date to:

Computer Systems Manager
Spirax Sarco Ltd.
Charlton House
Cheltenham GL53 8ER



(3416)

**THE ROGER PARKER
ORGANISATION**

**ANALYSTS, PROGRAMMERS
U.S. \$35,000 c. (Tax Free)**

Large International Bank in the Middle East require a number of people to form the nucleus of their development team. Experience of DEC hardware plus ARBAT and AIMS is essential. Work contents include Loan Assignments, Customer and G/L Accounting, Management Information Systems, Credits and FX Money Market Settlements. Location: Bahrain

**PROGRAMMERS TO SENIOR
ANALYSTS
£8,000 to £14,000**

Major food retailing organisation are setting up a new installation and require a number of professional staff to work on commercial systems utilising the latest on-line database techniques. The environment will consist of the latest IBM hardware running under MVS. Knowledge of TSO, IMS/DB/DC is essential plus COBOL and/or ASSEMBLER. Location: Herts.

**PROGRAMMING TEAM LEADER
£12,000 c.**

Someone with five years' IBM COBOL and including a minimum of two years' CICS, DL/I experience, is required to lead a team of programmers. The target mainframe is an IBM 4341 running under DOS/VSE. Development work covers applications under the headings of Manufacturing and Entertainment. Location: West London

P.S.: On our contracts file:

Operators with IBM DOS/VSE and MVS/JES 2/3 required for 4-6 months Anal/Progs. Software house requires COBOL Analyst/Programmers with Insurance systems experience. Any mainframe, six-month contract, renewable.

INTERESTED? Then telephone CLIVE CHATTIN now, or write to him at:

4 LONDON WALL BUILDINGS, BLOOMFIELD STREET, LONDON EC2M 5NT.
01-568 1611

**TREND COMMUNICATIONS LIMITED
SALES ENGINEERS**
for Manchester, London, Home Counties

Trend Communications are one of the leading U.K. suppliers of Data and Telegraph Test Equipment, Computer Peripherals, Commercial, Military and Data Processing Printers and the highly successful Puma Telex Terminal.

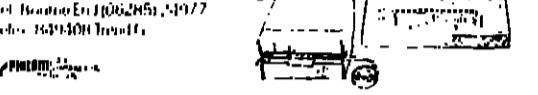
Continued expansion means that we need more Sales Engineers to join our highly skilled team.

Successful candidates will be experienced in selling products related to the Computer and Telecommunications Industry and possess suitable technical and educational qualifications.

Benefits include a basic salary, company car and realistic commission scheme related to experience and success.

Applications are required in writing with comprehensive career details to:

Mr. C. Hustable, Communications Sales Manager.
Trend Communications
Limited, London, Borehamwood,
Hertfordshire, WD6 4LA
Tel: 0992 500 6000



TREND

Intron is one of the most successful and advanced manufacturers of materials testing equipment in the world. We have the following vacancies in our small but busy Data Processing Department.

PROJECT LEADER
Up to £12.5K
SENIOR PROGRAMMER
Up to £11.5K

For both of these positions we are looking for at least 4 years' experience of IBM machines with COBOL. The successful candidate should ideally be educated to degree standard.

In keeping with the high standards which we maintain the Company is able to offer excellent starting salaries together with the usual benefits including non-contributory pension and life assurance scheme etc. Reference assistance will be provided where appropriate.

For an application form please see the Personnel Department or write to the Personnel Manager enclosing a detailed c.v.

Intron Limited, Coronation Road, High Wycombe, Bucks HP2 3SY. Telephone: High Wycombe (0494) 3333 (men or women may apply)

3443



CHIEF OPERATOR
CIRCA £8,000

For a mixed installation ICL ME28 CTL 8000 CROMEMCO System 3 ME28 and GEORGE 2 experience essential. Knowledge of Minis and Micros an advantage.

Candidates should have 4 years' experience, including a senior position within a ME28 installation.

Send full details or apply for an application form to: Mrs J. D. Parr, Personnel Officer, Haden Plc., 7-12 Tavistock Square, London WC1H 8LZ.

3443

THE EUROPEAN MOLECULAR BIOLOGY LABORATORY, a research institute situated in HEIDELBERG, Germany, invites applicants for a post as:

SCIENTIFIC PROGRAMMER

In the Computing and Applied Mathematics Programme to implement, maintain and further develop a user-oriented system for the computer analysis, storage and comparison of two-dimensional protein gel electrophoresis patterns. Other possible activities in addition to image processing might be the statistical analysis of protein and nucleotide sequence data. Applicants should have at least a bachelor's degree and good academic record and several years experience in writing well-structured and documented programmes. Expertise in efficiently handling large amounts of data in such areas as image processing, pattern recognition, and interactive graphics is highly desirable.

An 'above-average' salary will be offered to the successful candidate. Certain allowances are payable in addition, depending on personal circumstances. An initial contract of 3 years' duration, which can be renewed, will be offered.

Please write briefly for an application form quoting reference No. 83/11 to:

EMBL, Petershain Section
Postfach 10 2209 D-6900 HEIDELBERG

3443

**SHAPE TECHNICAL CENTRE
THE HAGUE, NETHERLANDS**

A NATO technical/scientific establishment has a vacancy on its international staff for a:

**SCIENTIFIC
ASSISTANT**

DUTIES

- Program development, coding, documenting and testing;
- Installation and testing of prototype systems;
- Programming assistance to users of laboratory software development system;
- Day-to-day running of development systems.

The work will be done under the direction of a Senior Scientific Assistant or Scientist.

QUALIFICATIONS

- HNC or equivalent
- Working knowledge of FORTRAN IV (or other HLL)
- Two years' relevant practical experience
- A good knowledge of English is essential

Initial annual net salary for non-Dutch married officials without children amounts to DG 49,727.

Candidates who are nationals of one of the NATO countries, should apply to the Personnel Officer, SHAPE Technical Centre, PO Box 174, 2501 CD The Hague, quoting reference CCS-B1-83, within three weeks of the appearance of this advertisement.

3487

SOFTWARE ENGINEER

Micro Memory Systems Ltd, a member of the International Grundy Group of companies, located in Newbury, Berkshire, are European representatives for Diacron 5½ inch Winchester disk technology and DTC Intelligence controllers. Micro Memory Systems have also developed and marketed a range of Winchester disk systems for a variety of applications.

We are now expanding our group and seek a competent Software Engineer with experience of ASSEMBLER programming on micro-processors. Experience gained on any micro-processor will be welcome, but the work will involve modification and adaptation of operating systems and utilities for a wide variety of 8- and 16-bit M.P.U.s.

The salary package will recognise the experience of the successful applicant and the importance of the position in Micro Memory Systems. A bonus scheme is also in operation.

Please apply to:

John Fisher, Technical Director
MICRO MEMORY SYSTEMS LTD
Kennet House, 68 London Road, Newbury, Berkshire RG13 1JN
Telephone (0635) 40465

3434

**DEPARTMENT OF COMPUTING
SERVICES**

**SYSTEMS
PROGRAMMERS**

(£5352-£8325)

Two systems programmers required, one to support TOPS-20 software on a DEC-20 computer, and the other to support RSX-11M and/or RSTS/E software on PDP-11 computers.

Experience in the use of any DEC operating system is required, together with a knowledge of at least one programming language. Preference will be given to suitably experienced applicants, but graduate subjects with a computing content will also be considered.

Further details and form of application available from the Staff Officer, Trent Polytechnic, Burton Street, Nottingham NG1 4BU. Closing date 13 May, 1983.

**TRENT
POLYTECHNIC
NOTTINGHAM**

PENWITH DISTRICT COUNCIL

**COMPUTER PROGRAMMER
GRADE AP.5**

An interesting and rewarding job opportunity has arisen in the Council Offices at Penzance for a Computer Programmer.

The post is initially for one year assisting in the introduction of a set of packages during which time the future development workload will be assessed. Should this post be successful, then it is likely that the appointment may be made permanent. Salary will be within the Scale 27,791-28,325.

The successful applicant should have at least two years' full time experience in programming and knowledge of BASIC or CMC DATA/BASIC would be an advantage.

Applications stating age, experience and the names of two referees to the Treasurer, St. Clare, Penzance, by 12 noon on Friday, 6th May, 1983.

3443

MODUS

Modus Management Services Limited
19 West Street, Dunstable, Beds. LU6 1SL
Telephone: Dunstable (0582) 608002
Evenings/Weekends: (0908) 670094

**The
CONSULTANCY
CHALLENGE**

Surrey/Hants Border Salaries £8,000-£18,000 + car

Since the late sixties our client has been offering consultancy, systems and software development services throughout the world and has achieved an exceedingly high reputation during this period. Over the past few years the demand for their main areas of expertise (namely, the mini and micro computer areas of defence, communications, information systems and real-time systems) has increased at an amazing rate. Accordingly, they urgently seek the very best software professionals available to sustain their prolific growth and excellent track record. Below are six of the opportunities available, but there are many more besides, ranging from Programmer to Principal Consultant levels...

**Consultant –
Videotex Specialist**

A proven ability in Videotex technology is essential and should ideally have included project definition and proposal production for new work and close liaison with customers. Candidates must possess technical expertise in Videotex and those with backgrounds including telecoms, packet switching and networking will be viewed with the greatest of interest. Candidates must have between three and eight years experience, preferably with a good knowledge of the VAX and, if possible, Ada.

**Senior/Principal
Consultant –
Banking & Finance**

Naturally, previous experience of either Banking or Financial projects is highly desirable, but the essence of the work in this group is to produce high availability/high reliability systems. Accordingly, most of the systems are implemented on TANDEM hardware. Therefore, unless their banking/finance knowledge is particularly deep, candidates really must have demonstrable TANDEM experience and an in-depth understanding of the communications related aspects of these systems.

**Programmer –
Industrial & Defence**

Candidates must be fluent in Coral 66, Pascal or a similar block-structured language and should have experience of either real-time defence applications or communications (message switching, networks, voice/data comms, etc).

For the young, but discerning careerist who currently feels hampered by a large bureaucratic environment, this must represent a most ideal opportunity for exciting new work and swift career advancement.

...Further Opportunities

It is difficult to list each and every opportunity available because they tend to vary as positions are 'tailored' to compromise the company's requirements against the individual's skills and talents. Suffice to say, however, that a number of alternative positions do exist, so general applications would be viewed with extreme interest and considered very seriously indeed. The essential qualifications of all candidates may be summarised as follows:

- * Educated to degree level.
- * Have at least two years real-time systems experience.
- * Be mobile, self motivated, communicative, self assured, etc.
- * Either have the 'consultancy presence' or, at the more junior levels, actively want to work in a consultancy environment.

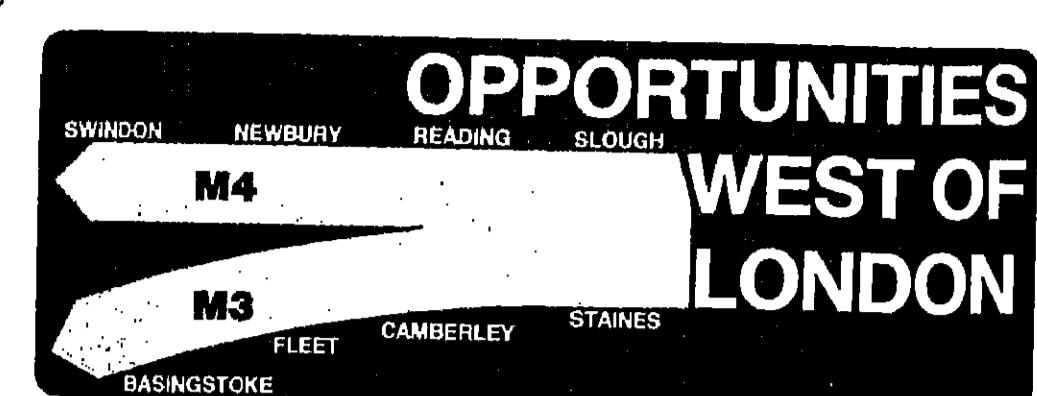
Without doubt a more challenging, demanding and exciting environment would be hard to find and the opportunities afforded difficult to surpass.

Contact David Waller for more details and information.

Modus Consultants are in London every Tuesday & Thursday - come and meet us



3471



OPPORTUNITIES WEST OF LONDON

Communications Programmer X25

SURREY

to £15K
Our client is at the forefront of remote data communications technology. A communications programmer is required to be responsible for design thru to implementation (including coding and testing) of the X25 Interface to the PSS public data service. He/she will be well versed in assembler (ideally MACRO 11) and have a good understanding of communications.

This exciting role offers a high starting salary plus the opportunity to be involved in sales support activities. Ref. K77

Sen. An/Prog. REAL TIME

READING

to £10K
A Market Leader in the design and manufacture of high quality data capture systems, seeks an additional senior analyst programmer.

The successful candidate will have sound experience of real time applications, including assembler on DEC, INTEL or Z80. PASCAL would be advantageous.

He/she will have had previous supervisory experience, be capable of planning projects and scheduling manpower, and enjoy direct customer liaison.

This will involve a wide variety of non-defence projects in a pleasant in-house environment. Ref. K78

ICL VME Specialist

BERKSHIRE

£10K-£14K

Leading international systems software company is currently developing a new range of software products for the ICL VME operating system.

Candidates should have a sound knowledge of the VME system, be familiar with SPL and have experience of languages such as COBOL or PASCAL.

In return, the company offers a career position within an innovative software environment together with the opportunity to broaden your knowledge of software and hardware products. Ref. AC9

BASIC Programmers

BERKSHIRE

to £9K

A fast expanding and highly successful computer services company seeks to recruit programmers with between 1 and 3 years BASIC experience in a commercial environment.

You will be actively involved in developing commercial systems on a variety of minis and micros.

Career progression in this stimulating environment is excellent with an early opportunity to move into design/team leading role. Ref. AC10

Sen. Programmer ME29

N. HANTS

to £10K

A specialist in the storage and distribution of temperature controlled products to national food multiples is embarking on an ambitious development phase, including plans for DATA DICTIONARY, IDMS and networking at a later date.

A senior programmer is required to augment their ME29 team using RANGE COBOL. A sound knowledge of MTS or TME/TP is essential.

Benefits include good salary, pleasant environment, flexible hours, realistic career development and, of course, the opportunity to learn new skills. Ref. K71

Programmer DEC RT11/CTS300

WEST LONDON

to £8,500

Our client, a multinational management service organization, with a turnover of \$300,000,000 develops advanced systems for particular market sectors using a mixture of hardware (DEC, IBM) software and telecommunications facilities.

An opportunity has arisen with their Travel and Leisure division for a Programmer to work as part of a team on the development of Hotel Reservation Systems.

Programming experience under the RT11 or CTS300 operating system is essential.

The position offers the opportunity to broaden experience and progress into either a client contact role or a more senior software development position. Ref. K72

MCL

McCourt Cousins Ltd, 27-29 Greyfriars Road, Reading, Berkshire.
Tel: Reading (0734) 595346 (24 hours)

MVS JES2 OPERATORS

BIRMINGHAM

£28K

18 months+ MVS JES2 experience is required to join this expanding installation and a knowledge of JCL would be a plus. Excellent prospects for the right applicants. Ref. AM777/CW

NETWORK SUPPORT C. LONDON

£29K

Minimum one year's experience on a remote network is required to join this installation. Knowledge of DOS CICS VM-CMS, BSC Protocol and modern equipment is essential, together with a sound data communications background. Good prospects. Ref. AM722/CW

OPERATIONS CONTROLLER W. LONDON

£10K

A dedicated and hardworking supervisor is sought by our client to take total responsibility for the imminent installation of their BSC. The successful applicant will be recruited for his/her thorough DOS/VSE VTAM expertise and ability to train and motivate a department of five. You must possess over two years' proven supervisory skills, be capable of understanding systems generation and organizing the computer room to a high standard. Ref. K598/CW

DOS/VSE OPERATOR LONDON

£28.2K + PERKS

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FTB

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Our client, a subsidiary of a substantial international group, is a fast-growing systems house providing a comprehensive range of products and services to clients operating in the European manufacturing and distribution sector.

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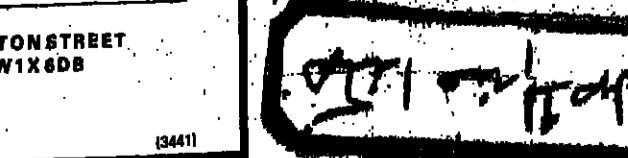
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Our Client is a highly successful Company with an International reputation in the mining of precious metals and other minerals and is in a unique position to offer worthwhile career opportunities to suitably experienced personnel. A good salary and a wide range of benefits including bonus, non contributory pension and initial accommodation in furnished flats is offered. Full assistance with relocation and immigration requirements will be given.

Our advising consultants at SCR have full details of these positions and interested Candidates should call Graham Utton or Martin Stainthorpe on 021-236 3781 or call 021-744 1862 between 7.00 p.m. to 9.00 p.m.

UK interviews will be held at SCR offices in mid May.

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Substantial familiarity with TP software is very

important, including DME, TME or CICS or ZILOG systems. COBOL is the most heavily utilised language.

Preference will be given to people with well developed interpersonal skills because it will be necessary to represent the company at all levels of client management. Knowledge of the Local Authority or Health Care market would be advantageous in the short term but there is potential to make use of a wide range of application experience.

Remuneration is negotiable but unlikely to be a limiting factor and the intention is to recognise and reward good performance with an above average package. Working conditions are good and plans are already in hand to move to larger premises as the need arises.

*To find out about the difference call Bruce Crammont on 01-631 4184 or send a detailed C.V. to:
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MIDDLE EAST Middle East! Sun, sand and camels, the ancient lands of the spice trade. These are the traditional images, but recently the picture has changed.

Sun and sand are now joined by oil and monetary wealth. The greatest inducement for many is the only one for leaving these green pastures for the pink deserts (it's personal enrichment). Money! We all seem to need more of it but for every reward there is a task to be done and care is needed in its choice.

There is advice for those who wish to earn the high rewards the Middle East has to offer and there are warnings for those with a Macawberish outlook on the world. There is also a flavour of another lifestyle, both exuberant and exotic, with its own multi-national culture, that of the expatriate modern-day renittance man.

The people are polite and generally courteous, though they lack our technological background, which is often mistakenly taken for stupidity and backwardness.

Fortunately a knowledge of Arabic is not necessary since most Arabs speak English.

The law is strict and penalties for more serious crimes often public. The most common offence among expatriates in Saudi Arabia resulting in a jail sentence is the selling of alcohol (not its consumption). For a sense of proportion, bear in mind that the sentences are lower than those imposed in the US in the days of prohibition.

Generally, there are classes of people for punishment purposes with less severe penalties going to the Westerner and the most severe to the Moslems.

Sand, sun, camels and money await you in the Middle East

But is it worth it? Declan Smith points out the pros and cons of Arabian life

It is imperative that you have personal transport. Car prices vary from one country to the next. In Dubai the prices are similar to the UK whereas in Saudi Arabia they are half that price. Your professional status is assured in the private sector and in Saudi Arabia this is particularly important.

Many contracts start lower with yearly increments and accompanied status to follow. These can ultimately be very worthwhile. A rule of thumb worth remembering is that after a one year contract it can take three months to get your next one, so reduce your salary accordingly.

A common mistake is to assume you will meet a financial target in a certain time. Add an extra year for every three. Inflation becomes noticeable after the first year but more insistently the growth in your expectations.

More expensive clothes and holidays becomes a part of your lifestyle. Your social

outgoings will become greater and your desire for the "bigger and better" will certainly grow.

Since your happiness and job satisfaction depend on the contract then let us look at the major types. The first is a contract with a UK based company. A contract of this type must be the safest of all. Most do not offer further employment on your return to the UK but you are in a strong position and they will try to retain you if possible.

The longer term prospects are good, promotion quite often going to those on-site, plus yearly increments in salary more than offsetting the lower starting figures.

Conditions depend on the size of the company but they all understand the UK norm both in creature comforts and the personnel department.

Importantly, if you have contracted to fulfil a particular function both sides understand the terms of reference and you will be employed in that function.

These last two should be thought about most carefully when dealing with companies from other parts of the world (particularly US) where you will be considered Third Country Nationals (TCNs).

The TCN contract requires explanation. This term applies to people employed by an Arab national

organisation which itself is in partnership with an expatriate company. Therefore the first nation is the Arab, the second is its partner and the third are all contract staff.

This is the worst possible situation to be in although the most profitable for certain categories, ie electronic engineers and microprocessor oriented software personnel. You are employed by an Arab concern (notably the oil ministries) but work almost exclusively for the partner which provides its own permanent staff to control the operation and also supply most of the equipment.

You will be considered as part of a labour pool and not as a professional part of the organisation. Perhaps the greatest problem exists when action benefiting the partner (seller) is taken at the expense of your employer (customer). It is then that a blind eye can be an intolerable strain. Personnel are sub-divided as to nationality, with differing conditions applying to each (according to the home country's company standards). Americans classify the British and the Third World as the same (except for pay) whereas European companies treat all Westerners equally, with a separate deal for the Third world. This type of contract is definitely only for the rhinoceros skinned who need a

quick injection of money.

The final type of employer is in the private sector. This mainly consists of agencies for the major computer and peripheral manufacturers. This is arguably the best of all worlds. Here you have the greatest personal freedom and the greatest responsibility.

Accommodation ranges from villas (with the major banks) to flats found by yourself. Most computer companies now have agents in the Arabian peninsula. Salaries are negotiable and are always in package terms. Employees are often expected to act as the local expert on all software/hardware the agency sells, plus be a part-time salesman.

Your experience will broaden considerably with good prospects for promotion. Your fortunes are tied to those of the agency so consider the product line carefully. This is a boom area since protection forces companies to buy through local agents.

Before you leave home check: The contract is in both languages and you are sure of the translation. The tax position. There are plenty of leaflets available and several banks have experts only too pleased to help. Any points not clarified by your future employer should be assigned to the "worst case". Verbal promises of "we are just changing xyz" kind should be ignored.

These contracts are mainly accompanied and often for two years. If you like self-determination and are self-sufficient this is the one

for you. The social security benefits are often very good though written copies are difficult to obtain. For example in Saudi Arabia, where women are discouraged from working, the law insists on maternity leave and nursing facilities to be provided by the employer. It is well worth your while obtaining a copy and reading them carefully.

Often companies will attempt to deny you these rights by disclaimer in your contract. These can be ignored since all contracts are bound by local laws. These laws are a two-edged axe, no unions are allowed nor any strikes. Collective complaints can be construed as industrial espionage with imprisonment until trial!

You find out about these jobs from agencies advertising in your favourite paper and often they really do have positions that are never directly advertised.

The bigger companies advertise directly. Unfortunately most agencies have no personal experience of the area and rely heavily on what they have been told by the employer. This can be highly coloured! Company facilities are often non-existent or public not private. Delays of up to three months from the first approach are to be expected.

Your experience will broaden considerably with good prospects for promotion. Your fortunes are tied to those of the agency so consider the product line carefully. This is a boom area since protection forces companies to buy through local agents.

Social mobility is greatest here and a truly cosmopolitan lifestyle is enjoyed. The tax position. There are plenty of leaflets available and several banks have experts only too pleased to help. Any points not clarified by your future employer should be assigned to the "worst case". Verbal promises of "we are just changing xyz" kind should be ignored.

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The successful candidate should be educated to degree level and have an in-depth knowledge of CICS preferably gained in a DOS environment.

Reporting to the Computer Manager the Senior Analyst/Programmer would be expected to both supervise and train an experienced team of Analyst/Programmers in the effective use of CICS software.

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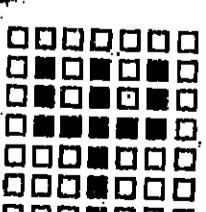
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The work includes project control systems, data administration and systems/procedures. The successful candidate will also develop, implement and monitor the standards defined within the EDP area. In the future he/she will also become involved in quality assurance, budgets and long term planning/control. Applicants should have two/three years Analysis experience. A knowledge of banking and structured techniques would be an advantage.

Systems Programmer

Implementation of "state of the art" communications products and protocols

Up to £11,000 per annum
+ valuable benefits

Within this MVS/JES2 and VTAM/NCP environment the successful candidate will implement the latest communications products and protocols. This would probably be the first career move for a young, enthusiastic and flexible individual who still has a lot to learn about Systems Programming. The ideal candidate will have at least two years computing experience (one of which should have been as a Systems Programmer) preferably within an MVS/JES2 and/or VTAM/NCP environment.

In the future the candidate should be promoted to a Senior level position or alternatively move within other areas of the Data Processing Department.

For further details about these vacancies please contact John Miskelly MBCS, on (01) 606 9473 today, or at home tonight (after 7pm)/over the weekend on (01) 505 8251. Alternatively, send a cv to the address below quoting CP/2.

JM Management Services Ltd., 102 Newgate Street, London EC1A 7AP. Tel: 01-606 9473.

CONTRACTORS

IBM

IBM PL/1 IMS JSP ANALYST/PROGRAMMER
IBM OS/MVS COBOL CICS PROGRAMMER
IBM MVS COBOL IMS/DB/DC DATA ANALYSIS SYSTEMS DESIGNER
IBM MVS COBOL IMS DB/DC DATA ANALYSIS ANALYST/PROGRAMMER
IBM MVS COBOL IMS DB/DC DATA ANALYSIS PROGRAMMER
IBM MVS COBOL IMS DB/DC PROGRAMMER
IBM OS PL/1 IMS DB/DC ANALYST/PROGRAMMER

ICL

ICL + IDMS ANALYSTS
ICL + ANY DATABASE ANALYSTS
ICL VME/B COBOL ANALYST/PROGRAMMERS
ICL VME/B IDMS ANALYSTS/PROGRAMMER
ICL EXP TECHNICAL AUTHORS
ICL ME 29 TME RANGE COBOL MTS ANALYST/PROGRAMMERS
USER END ANALYST (ICL BACKGROUND PREF)
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Our clients are a market leader in their own particular field with a healthy turnover and solid commitment to the Data Processing facility.

Due to continuing development plans, particularly for the Manufacturing Systems areas, they require two further members of their Applications Development Team.

The current configuration consists of an HP 3000/44 with planned upgrade and utilises IMAGE QUERY VIEW and QUIZ together with FORTRAN and COBOL. A network of some 30 local and remote terminals is in operation.

Candidates are expected to be flexible and self-motivated with the potential to take on more senior roles quickly. Fortran and a manufacturing background are desirable.

In addition to the competitive salary, ample scope for progression is offered and cheap housing is available in the Peterborough area.

Contact either office

(3381)

TCR Targa Computer Recruitment
8 Liverpool Street, London EC2M 7NH
Monaco House, Brindisi Street, Birmingham B5 7AS
Telephone 01 263 9941 Telex 28651
Telephone 021 452 2045 Telex 3 3427

THE SCHUMANN CONSULTING GROUP

We are a respected consulting group with approximately 220 employees. For the past 11 years, we have been providing a wide variety of services in the fields of management, organisation and data processing on behalf of important clients at home and abroad. We are now considerably expanding our "system consulting" section and are therefore looking for several new members of staff.

We require:

SYSTEM SPECIALISTS

For interesting and demanding system-related assignments, both German and International, using IBM equipment. (Reference: 103).

You should have the following qualifications:

- Sound theoretical training with degree or equivalent in mathematics, computer science or engineering.
- Wide experience of system programming and generation.
- Practical experience in installation and management of DB/DC systems.
- Detailed knowledge and several years' experience in one of the following fields:
 - + Networks, especially SNA.
 - + MVS system programming and tuning with emphasis on VTAM.
 - + VM/CMS system programming and tuning with a DOS/VSE and MVS background.
 - + DDP, especially 8100.
 - + Data communications, especially QIC.
- Good knowledge of English and at least basic German.

Successful candidates will not only have the necessary professional experience, but also the ability to apply their particular experience as skilled consultants. They will also need flexibility, willingness to undergo further training at all times, with our support, as well as the drive and ability to work as part of a team.

For the right candidates, we are offering competitive salaries and results-oriented bonuses. Please write to us, quoting the above reference, and enclosing all relevant credentials. For further information by telephone, ask for Dr Boenner.

All applications will be treated with complete confidentiality. Unternehmensberatung Schumann GmbH, Haselnusshof 1, 5000 Koeln 71, W. Germany. Tel: Cologne 79 80 91 (-85).

(3382)

your appointments register

Programmers

NCR/IBM/COBOL to £15K
Insurance Banking London - H. Counties - N. Eng.

COBOL/FL1/OS/CICS/IMS to £13K
Commercial H. Counties - Midlands - Manchester

ICL/ON-LINE EXP to £12K
COBOL Surrey

HONEYWELL to £12K
Systems Programming experience Middlesex

DATA GENERAL/ECLIPSE to £11K
Cobol Leicestershire

IBM/RPG2 to £12K
Financial/Insurance Home Counties

IBM to £16K
System exp. Essex

ICL/VMEB or K to £11K
Financial Surrey

IBM/UNIVAC/COBOL to £12K
On-line/Database Surrey

NCR 8200 to £14K
Financial SW LONDON

Analyst/Progs

BURROUGHS/COBOL to £14K
Commercial Surrey

IBM 34/38 to £15K
London/Home Counties/North

DATA GENERAL/COBOL to £11K
Commercial Mini experience London

IBM/COBOL to £10K
Scotland

Hardware/Support

APPLICATIONS ENGINEER to £15K
Peripherals Support/Microprocessor Systems London plus International Travel

SERVICE ENGINEER to £20K
DEC/Various MINIS Middle East

TECHNICAL MANAGER to £15K
Disk Drive Technology Sheffield

TECHNICAL AUTHORS to £Neg.
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CAD/CAM/GRAPHICS to £15K
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ENGINEERS to £15K
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You can be sure of hearing about many opportunities like these, U.K. and abroad, when you make Sloangate your first choice. Take the next step in your career with us!

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Sloangate
The Appointments Register

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Stock Control/Commodity Control London

CAD/CAM to £16K
Real time - Modelling Man - Essex - South West

IBM/BURROUGHS to £15K
Commercial Accountancy London/Surrey/Manchester

IBM SYSTEM 34/38 to £13K
Maapics/Rpg Sussex

ICL/ME29 to £16K
Commercial Design Barks.

IBM SYSTEM 34/38 MAAPICS to £13K
Sussex

Software Engineers

CORAL/PASCAL/MASCOT/C to £13K
Communications Glos/Hants/Sussex/Midlands/Manchester

FORTRAN to £12K
Finite Element/Graphic Display Home Counties

MILITARY SYSTEMS/RADAR to £11K
Coral - Mascot Hants/Surrey - Essex - S. West

PDP/VAX/INTEL to £13K
Telecomm - ATE Surrey/London/Kent

COMMS/TELECOMS/MOD to £14K
Mini/Midframe E. Anglia

HP3000/INTEL to £12K
CAD/CAM/ATE Home Counties

TERMINAL EMULATORS to £15K
C/Assembler London

Snr Appointments

PROJECT LEADER to £15K
Military Systems Berks/Hants

SALES EXECUTIVES to £25K
Micros - Mini - Peripherals, etc. UK & Overseas

CONSULTANT to £15K
Military/Defence Berks

SYSTEM PROGRAMMING to £15K
Digital/RS/TS/E, BASIC Bucks

TEAM MANAGER to £17K
Computer Modelling S. London

CAD/CAM/GRAPHICS to £15K
Home Counties

ICL/PRE- AND POST-SALES SUPPORT to £15K
Berks.

SENIOR SOFTWARE ENGINEER to £18K
Software capabilities/Technical consultant E. Anglia

VM Software Designer

To £15K

East Anglia

We are offering an exciting career opportunity to someone to provide the technical leadership to develop a new VM/CMS derivative of a product currently based on TSO. You should be able to generate a VM/SP system, set up CMS and be conversant with CMS 1/0 routines, screen and interrupt handlers. You are probably now a Systems Programmer keen to use your imagination and do a job which calls for creative flair.

You will bring additional experience to a highly capable team of Systems and Applications Programmers developing relational database management and applications software packages for IBM machines. These products, written in PL/I and Assembler, are now available on MVS/SP3 with TSO and we are extending them to VM/CMS, CICS and DOS/VSE environments and adding extra graphics, communications and applications features.

Metier is a British owned company whose project management systems are worldwide leaders. Our research and development is centred in Ipswich where we have recently installed our own BASF 7/65 dedicated to development work. We offer:

- Competitive salary
- BUPA and Life Insurance
- Pension Fund
- Relocation assistance

Ipswich is an attractive area offering low-cost housing, good schools and an excellent lifestyle.

If you are interested in an exciting and challenging career and are seeking Mr. Roger Staines, Metier Management Systems Ltd., 15-17 Fore Street, Ipswich, Suffolk, IP4 3JW. Tel: 0473 21961.

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HOWARD

EUROPE

Systems Analysts, HOLLAND
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Analyst Programmers, BELGIUM
Honeywell L6/66 (COBOL, Statistical Forecasting) or HP3000

Analyst, LUXEMBURG
Programmers/Tech Author
ICL COBOL VME-B, Programming, Training and Writing, French, Knowledge and OSIRIS A plus

Programmers, BELGIUM, HOLLAND
IBM CICS, COBOL, DL/1
Please contact, in the first instance, Sally Lawrence on 01-952 8092 (office hours) or 01-906 2617 between 6-8 pm, Employment business section.

Howard Organisation International Limited, Russell House, 140 High Street, Edgware, Middlesex, HA8 7BS.

MSA
The Software Company

PAYROLL SALES EXECUTIVE

MAIDENHEAD, BERKSHIRE

Realistic on target earnings £35,000 + quality car (Rover, Volvo, Audi)

1982 saw MSA (Management Science America) Inc. pass the \$100 million revenue mark, with the U.K. Company growing by 140%. This exciting growth rate, making MSA the world's leading independent supplier of packaged application software, has been achieved partly by the supremacy of its products and partly by a policy of recruiting high calibre professionals.

The MSA Payroll System is one of the most widely used in the industry due to its reliability and flexibility, providing management with a proven method of monitoring and controlling payroll costs.

We are looking for a successful Sales Executive EITHER with experience in selling payroll OR with experience in selling other financial software and the potential to sell payroll. In either case, we are looking for an established Sales Executive with a first class track record.

Your ability to negotiate at a senior level and your disciplined and professional approach to selling will have ensured that you are already successful and enjoying high earnings. We suggest that you build on that success by joining a company whose reputation and growth are unrivalled, and where plans for 1983 and beyond will ensure the best possible career prospects.

It's likely that, because of the qualities we seek, you'll be in the age range 28-42.

Please contact MARK IRENS to discuss this top sales opportunity. Ref: CW2804/1

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SPECIALIST RECRUITMENT CONSULTANTS

CONSULTANCY

LONDON

circa £16,500 + car

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You will need to meet all the following requirements:

- (1) Good degree.
- (2) Perfect communication skills and professional manner.
- (3) 25-32 years old.
- (4) Proven track record, either in a variety of application areas or in International banking or Insurance.

You will mainly be involved in pure consultancy, but also in project management. This is seen as a logical career step for high fliers who have proved themselves in a user environment and are ready to move forward.

For further information, please contact MARK IRENS quoting reference CW2804/3

IBM SYSTEM 34

WITH 2+ YEARS DP EXPERIENCE AND RPG II

Permanent positions as Analyst/Programmers in Kingston, Surrey, offering excellent working conditions and salary circa £12,000 p.a.

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Contracts offering excellent working environment in Central London circa £450 per week.

Please write to AHMAD FAROOQ or phone him on 01-947 8544 (office hours), 01-394 2921 (evenings/weekends)

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PROJECT MANAGER - PLYMOUTH

RETAIL BANKING SYSTEMS

£12-£13K + two-litre car
Discretionary 20% performance bonus

Our Clients are market leaders in financial terminal systems with an excellent and prestigious user base. They have an immediate vacancy based at a client's offices in Plymouth with an average of one day a week spent in London.

The position is to project manage a turnkey "front and back office" Retail Banking System. This includes writing and documenting the System's applications and operating software, and installing and commissioning the hardware. A staff of eight, including two Team Leaders, report in.

The prerequisites for this position are as follows:

- ★ Resident or prepared to relocate within easy commuting distance of Plymouth.
- ★ Proven in-depth project management experience of similar or larger sized projects is essential.
- ★ A technical (programming) background before progressing into systems and project management.
- ★ Experience of similar projects, either in terms of industry (High Street banking; building societies) or technical content (local area networking; distributed data processing) are obviously very useful but not essential.

Career progression with the Vendor, one of the largest computer manufacturers in the world, is assured with the immediate position having the added attraction of location. Please telephone BOB BOWER, the Advising Director, to arrange an interview. Written applications should include a detailed C.V.

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SALES ACCOUNT MANAGEMENT

HOME COUNTIES (LONDON BASED)
LARGE RETAIL AND INDUSTRIAL ACCOUNTS

Basic £12K - on quota £24K plus negotiable guarantee
to £24K
Sierra two-litre GL or similar

Local area networks and other types of distributed data processing and communications related systems are arguably the most dynamic facets of the Computer Industry today.

Our clients, one of the largest computer manufacturers in the world, are market leaders in these areas and are looking to expand even further in the U.K. To that end, they have an immediate requirement for three Account Managers based in London and with responsibility for both geographical territories and portfolio accounts.

Experience of selling similar products to large accounts is of course ideal but equally important is a proven successful sales track record over a number of years. To that end, it is unlikely that anyone under the age of 30 would be sufficiently experienced.

Our clients offer a superb career for the successful and several of their existing salesmen are earning considerably larger sums than the advertised figures. If you are interested in a position that is technically "state of the art" and is both demanding and rewarding, then please contact BOB BOWER as soon as possible to arrange an interview.

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OFFER OUTSTANDING OPPORTUNITIES FOR
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(Eight years' UNIVAC 1100 COBOL experience and six years' DMS or four years' DPS)

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(Four years' UNIVAC 1100 COBOL experience and 18 months' DMS or TIP or DPS)



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(Two years' UNIVAC 1100 COBOL experience and six months' DMS or TIP or DPS)

FOR THE USA ONLY WE NEED:

**A TELECON CONSULTANT
SYSTEMS PROGRAMMERS**
(OS 1100 Internals)

SYSTEMS PROGRAMMERS
(DMS)

If you qualify and can be available within the next three-four months, please contact:

ERIC OLDHAM
ALMNER'S PRIORY
ALMNER'S ROAD
LYNE
Nr CHERTSEY
SURREY KT16 0BH
Telephone Chertsey (09328) 66812

(3378)

PROJECT MANAGER

SALARY PACKAGE UP TO 20K
+ CAR

LONDON AND BRISTOL

Our clients, a well-respected software house with offices in the City and in Bristol are seeking to employ a professional project manager who will take over the running of a number of individual project teams and act as an interface with their clients.

This position is regarded as an important appointment and applications are invited from candidates who have a strong data processing background coupled with a high level of commercial awareness. Previous experience with a software house would be an advantage but is by no means a prerequisite.

Our client works mainly on a variety of commercial systems and includes many well-known "blue-chip" companies amongst its past and present clients.

An excellent benefits package, a high salary and a company car are offered as reward for this highly challenging and interesting post.

For further information please ring Chris Morrow on 01-837 0451 quoting reference RC8/83.

**TOTAL
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388 City Road, London EC1V 2QA

01-837 0451

THE UNIVERSITY
OF SUSSEX
**Statistical
Adviser/
Senior
Programmer**

In the Research Data Analysis Unit
In Arts and Social Studies, from July
1, 1983 or as soon as possible
thereafter.

The person appointed will need a thorough knowledge of the use of statistics in the social sciences, together with experience of programming and the use of statistical packages. Duties will include advising on the acquisition and use of library programs for survey and experimental data and some programming duties. The programming languages in use include Pascal, Fortran and Algol 68. Use is made of VAX 11/780 computers running under VMS and regional machines at London and Manchester.

Salary will be in Range 1A of the Other Related Faculty salaries scale, currently £10,320 to £11,100, allowing plus membership of the Universities Superannuation Scheme.

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Required for the development of systems and should have experience in IBM, COBOL, CICS and DL/1. Ref. 8028

Required for new Honeywell installation in COBOL. 3 years experience in COBOL, TDS, IDS 11 and Database. Ref. 8034

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Team Bayesian Technical Division
TASCROWNS LTD (449)
40 Lough Road, Eastleigh, Hants
Tel: 0703 641429

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